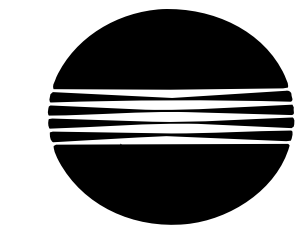
CF2001P

SERVICE MANUAL



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1. SAFETY PRECAUTIONS FOR INSPECTION AND SERVICE

- When performing inspection and service procedures, observe the following precautions to prevent accidents and ensure utmost safety.

✻ Depending on the model, some of the precautions given in the following do not apply.

- Different markings are used to denote specific meanings as detailed below.

WARNING Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

- The following graphic symbols are used to give instructions that need to be observed.

Used to call the service technician's attention to what is graphically represented inside the marking (including a warning).

Used to prohibit the service technician's from doing what is graphically represented inside the marking.

Used to instruct the service technician's to do what is graphically represented inside the marking.

1-1. Warning

WARNING

1. Always observe precautions.

- Parts requiring special attention in this product will include a label containing the mark shown on the left plus precautionary notes. Be sure to observe the precautions.
- Be sure to observe the "Safety Information" given in the Operator's Manual.

2. Before starting the procedures, be sure to unplug the power cord.

- This product contains a high-voltage unit and a circuit with a large current capacity that may cause an electric shock or burn.
- The product also contains parts that can jerk suddenly and cause injury.
- If this product uses a laser, laser beam leakage may cause eye damage or blindness.

3. Do not throw toner or the toner bottle into a fir.

- Do not throw toner or the toner bottle (Imaging Cartridge) into a fire. Toner expelled from the fire may cause burns.

4. Use the specified parts.

- For replacement parts, always use the genuine parts specified in the manufacturer's parts manual. Installing a wrong or unauthorized part could cause dielectric breakdown, overload, or undermine safety devices resulting in possible electric shock or fire.
- Replace a blown electrical fuse or thermal fuse with its corresponding genuine part specified in the manufacturer's parts manual. Installing a fuse of a different make or rating could lead to a possible fire. If a thermal fuse blows frequently, the temperature control system may have a problem and action must be taken to eliminate the cause of the problem.

5. Handle the power cord with care and never use a multiple outlet.

- Do not break, crush or otherwise damage the power cord. Placing a heavy object on the power cord, or pulling or bending it may damage it, resulting in a possible fire or electric shock.
- Do not use a multiple outlet to which any other appliance or machine is connected.
- Be sure the power outlet meets or exceeds the specified capacity.

6. Be careful with the high-voltage parts.

- A part marked with the symbol shown on the left carries a high voltage. Touching it could result in an electric shock or burn. Be sure to unplug the power cord before servicing this part or the parts near it.

7. Do not work with wet hands.

- Do not unplug or plug in the power cord, or perform any kind of service or inspection with wet hands. Doing so could result in an electric shock.

8. Do not touch a high-temperature part.

- A part marked with the symbol shown on the left and other parts such as the exposure lamp and fusing roller can be very hot while the machine is energized. Touching them may result in a burn.
- Wait until these parts have cooled down before replacing them or any surrounding parts.

9. Maintain a grounded connection at all times. (This item may not apply in the USA.)

- Be sure to connect the ground wire to the ground terminal even when performing an inspection or repair. Without proper grounding, electrical leakage could result in an electric shock or fire.
- Never connect the ground wire to a gas pipe, water pipe, telephone ground wire, or a lightning conductor.

10. Do not remodel the product.

- Modifying this product in a manner not authorized by the manufacturer may result in a fire or electric shock. If this product uses a laser, laser beam leakage may cause eye damage or blindness.

11. Restore all parts and harnesses to their original positions.

- To promote safety and prevent product damage, make sure the harnesses are returned to their original positions and properly secured in their clamps and saddles in order to avoid hot parts, high-voltage parts, sharp edges, or being crushed.
- To promote safety, make sure that all tubing and other insulating materials are returned to their original positions. Make sure that floating components mounted on the circuit boards are at their correct distance and position off the boards.

1-2. Caution

CAUTION

1. Precautions for Service Jobs.

- A toothed washer and spring washer, if used originally, must be reinstalled. Omitting them may result in contact failure which could cause an electric shock or fire.
- When reassembling parts, make sure that the correct screws (size, type) are used in the correct places. Using the wrong screw could lead to stripped threads, poorly secured parts, poor insulating or grounding, and result in a malfunction, electric shock or injury.

- Take great care to avoid personal injury from possible burrs and sharp edges on the parts, frames and chassis of the product.
- When moving the product or removing an option, use care not to injure your back or allow your hands to be caught in mechanisms.

2. Precautions for Servicing with Covers and Parts Removed.

- Wherever feasible, keep all parts and covers mounted when energizing the product.
- If energizing the product with a cover removed is absolutely unavoidable, do not touch any exposed live parts and use care not to allow your clothing to be caught in the moving parts. Never leave a product in this condition unattended.
- Never place disassembled parts or a container of liquid on the product. Parts falling into, or the liquid spilling inside, the mechanism could result in an electric shock or fire.

- Never use a flammable spray near the product. This could result in a fire.
- Make sure the power cord is unplugged before removing or installing circuit boards or plugging in or unplugging connectors.
- Always use the interlock switch actuating jig to actuate an interlock switch when a cover is opened or removed. The use of folded paper or some other object may damage the interlock switch mechanism, possibly resulting in an electric shock, injury or blindness.

3. Precautions for the Working Environment.

- The product must be placed on a flat, level surface that is stable and secure.
- Never place this product or its parts on an unsteady or tilting workbench when servicing.
- Provide good ventilation at regular intervals if a service job must be done in a confined space for a long period of time.
- Avoid dusty locations and places exposed to oil or steam.
- Avoid working positions that may block the ventilation ports of the product.

4. Precautions for Handling Batteries. (Lithium, Nickel-Cadmium, etc.)

- Replace a rundown battery with the same type as specified in the manufacturer's parts manual.
- Before installing a new battery, make sure of the correct polarity of the installation or the battery could burst.
- Dispose of used batteries according to the local regulations. Never dispose of them at the user's premises or attempt to try to discharge one.

5. Precautions for the Laser Beam. (Only for Products Employing a Laser)

- Removing the cover marked with the caution label could lead to possible exposure to the laser beam, resulting in eye damage or blindness. Be sure to unplug the power cord before removing this cover.
- If removing this cover while the power is ON is unavoidable, be sure to wear protective laser goggles that meet specifications.
- Make sure that no one enters the room when the machine is in this condition.
- When handling the laser unit, observe the "Precautions for Handling Laser Equipment."

6. Precautions for storage the toner or imaging cartridge.

- Be sure to keep the toner or imaging cartridge out of the reach of children. Licking the imaging cartridge or ingesting its contents is harmful to your health.

1-3. Other Precautions

- When handling circuit boards, observe the "HANDLING of PWBs".
- The PC Drum is a very delicate component. Observe the precautions given in "HANDLING OF THE PC DRUM" because mishandling may result in serious image problems.
- Note that replacement of a circuit board may call for readjustments or resetting of particular items, or software installation.

1-4. Used Batteries Precautions

ALL Areas

CAUTION

Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type recommended by the manufacturer.
Dispose of used batteries according to the manufacturer's instructions.

Germany

VORSICHT!

Explosionsgefahr bei unsachgemäßem Austausch der Batterie.
Ersatz nur durch denselben oder einen vom Hersteller empfohlenen gleichwertigen Typ.
Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

France

ATTENTION

Il y a danger d'explosion s'il y a remplacement incorrect de la batterie.
Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur.
Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

Denmark

ADVARSEL!

Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandøren.

Finland, Sweden

VAROITUS

Paristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin.
Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

VARNING

Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt fabrikantens instruktion.

Norway

ADVARSEL

Eksplosjonsfare ved feilaktig skifte av batteri.
Benytt samme batteritype eller en tilsvarende type anbefalt av apparatfabrikanten.
Brukte batterier kasseres i henhold til fabrikantens instruksjoner.

1-5. Precautions for Service

- When performing inspection and service procedures, observe the following precautions to prevent mishandling of the machine and its parts.

✻ Depending on the model, some of the precautions given in the following do not apply.

1. Precautions Before Service

- When the user is using a word processor or personal computer from a wall outlet of the same line, take necessary steps to prevent the circuit breaker from opening due to overloads.
- Never disturb the LAN by breaking or making a network connection, altering termination, installing or removing networking hardware or software, or shutting down networked devices without the knowledge and express permission of the network administrator or the shop supervisor.

2. How to Use this Book

< DIS/REASSEMBLY, ADJUSTMENT >

- To reassemble the product, reverse the order of disassembly unless otherwise specified.

< TROUBLESHOOTING >

- If a component on a PWB or any other functional unit including a motor is defective, the text only instructs you to replace the whole PWB or functional unit and does not give troubleshooting procedures applicable within the defective unit.
- All troubleshooting procedures contained herein assume that there are no breaks in the harnesses and cords and all connectors are plugged into the right positions.
- The procedures preclude possible malfunctions due to noise and other external causes.

3. Precautions for Service

- Check the area surrounding the service site for any signs of damage, wear or need of repair.
- Keep all disassembled parts in good order and keep tools under control so that none will be lost or damaged.
- After completing a service job, perform a safety check. Make sure that all parts, wiring and screws are returned to their original positions.
- Do not pull out the toner hopper while the toner bottle is turning. This could result in a damaged motor or locking mechanism.
- If the product is to be run with the front door open, make sure that the toner hopper is in the locked position.
- Do not use an air gun or vacuum cleaner for cleaning the ATDC Sensor and other sensors, as they can cause electrostatic destruction. Use a blower brush and cloth. If a unit containing these sensors is to be cleaned, first remove the sensors from the unit.

4. Precautions for Dis/Reassembly

- Be sure to unplug the copier from the outlet before attempting to service the copier.
- The basic rule is not to operate the copier anytime during disassembly. If it is absolutely necessary to run the copier with its covers removed, use care not to allow your clothing to be caught in revolving parts such as the timing belt and gears.
- Before attempting to replace parts and unplug connectors, make sure that the power cord of the copier has been unplugged from the wall outlet.
- Be sure to use the Interlock Switch Actuating Jig whenever it is necessary to actuate the Interlock Switch with the covers left open or removed.
- While the product is energized, do not unplug or plug connectors into the circuit boards or harnesses.
- Never use flammable sprays near the copier.
- A used battery should be disposed of according to the local regulations and never be discarded casually or left unattended at the user's premises.
- When reassembling parts, make sure that the correct screws (size, type) and toothed washer are used in the correct places.

5. Precautions for Circuit Inspection

- Never create a closed circuit across connector pins except those specified in the text and on the printed circuit.
- When creating a closed circuit and measuring a voltage across connector pins specified in the text, be sure to use the GND wire.

6. Handling of PWBs

< During Transportation/Storage >

- During transportation or when in storage, new P.W. Boards must not be indiscriminately removed from their protective conductive bags.
- Do not store or place P.W. Boards in a location exposed to direct sunlight and high temperature.
- When it becomes absolutely necessary to remove a Board from its conductive bag or case, always place it on its conductive mat in an area as free as possible from static electricity.
- Do not touch the pins of the ICs with your bare hands.
- Protect the PWBs from any external force so that they are not bent or damaged.

< During Inspection/Replacement >

- Avoid checking the IC directly with a multimeter; use connectors on the Board.
- Never create a closed circuit across IC pins with a metal tool.
- Before unplugging connectors from the P.W. Boards, make sure that the power cord has been unplugged from the outlet.
- When removing a Board from its conductive bag or conductive case, do not touch the pins of the ICs or the printed pattern. Place it in position by holding only the edges of the Board.
- When touching the PWB, wear a wrist strap and connect its cord to a securely grounded place whenever possible. If you cannot wear a wrist strap, touch a metal part to discharge static electricity before touching the PWB.
- Note that replacement of a PWB may call for readjustments or resetting of particular items.

7. Handling of Other Parts

- The magnet roller generates a strong magnetic field. Do not bring it near a watch, floppy disk, magnetic card, or CRT tube.

8. Handling of the PC Drum

✻ Only for Products Not Employing an Imaging Cartridge.

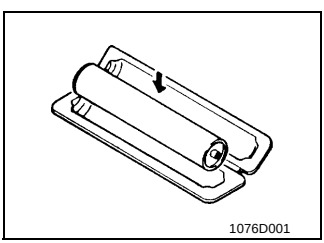
< During Transportation/Storage >

- Use the specified carton whenever moving or storing the PC Drum.
- The storage temperature is in the range between –20°C and +40°C.
- In summer, avoid leaving the PC Drum in a car for a long time.

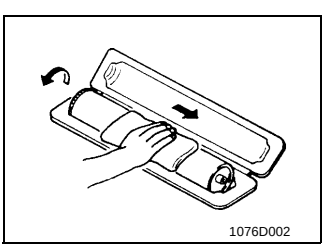
< Handling >

- Ensure that the correct PC Drum is used.
- Whenever the PC Drum has been removed from the copier, store it in its carton or protect it with a Drum Cloth.
- The PC Drum exhibits greatest light fatigue after being exposed to strong light over an extended period of time. Never, therefore, expose it to direct sunlight.
- Use care not to contaminate the surface of the PC Drum with oil-base solvent, fingerprints, and other foreign matter.
- Do not scratch the surface of the PC Drum.
- Do not apply chemicals to the surface of the PC Drum.
- Do not attempt to wipe clean the surface of the PC Drum.

If, however, the surface is contaminated with fingerprints, clean it using the following procedure.



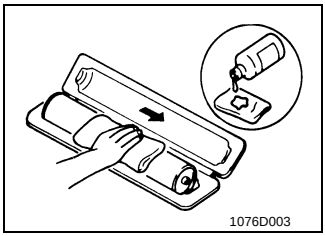
A. Place the PC Drum into one half of its carton.



B. Gently wipe the residual toner off the surface of the PC Drum with a dry, Dust-Free Cotton Pad.

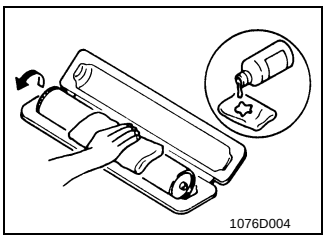
- Turn the PC Drum so that the area of its surface on which the line of toner left by the Cleaning Blade is present is facing straight up. Wipe the surface in one continuous movement from the rear edge of the PC Drum to the front edge and off the surface of the PC Drum.
- Turn the PC Drum slightly and wipe the newly exposed surface area with a CLEAN face of the Dust-Free Cotton Pad. Repeat this procedure until the entire surface of the PC Drum has been thoroughly cleaned.

✻ At this time, always use a CLEAN face of the dry Dust-Free Cotton Pad until no toner is evident on the face of the Pad after wiping.



C. Soak a small amount of either ethyl alcohol or isopropyl alcohol into a clean, unused Dust-Free Cotton Pad which has been folded over into quarters. Now, wipe the surface of the PC Drum in one continuous movement from its rear edge to its front edge and off its surface one to two times.

✻ Never move the Pad back and forth.



D. Using the SAME face of the Pad, repeat the procedure explained in the latter half of step 3 until the entire surface of the PC Drum has been wiped. Always OVERLAP the areas when wiping. Two complete turns of the PC Drum would be appropriate for cleaning.

NOTES

- *Even when the PC Drum is only locally dirtied, wipe the entire surface.*
- *Do not expose the PC Drum to direct sunlight. Clean it as quickly as possible even under interior illumination.*
- *If dirt remains after cleaning, repeat the entire procedure from the beginning one more time.*

9. Handling of the Imaging Cartridge

✻ Only for Products Employing an Imaging Cartridge.

< During Transportation/Storage >

- The storage temperature is in the range between –20°C and +40°C.
- In summer, avoid leaving the Imaging Cartridge in a car for a long time.

< Handling >

- Store the Imaging Cartridge in a place that is not exposed to direct sunlight.

< Precautionary Information on the PC Drum Inside the Imaging Cartridge >

- Use care not to contaminate the surface of the PC Drum with oil-base solvent, fingerprints, and other foreign matter.
- Do not scratch the surface of the PC Drum.
- Do not attempt to wipe clean the surface of the PC Drum.

GENERAL

This Service Manual contains information unique only to CF2001P as compared with CF1501/2001.
Please use it together with the Service Manual for CF1501/2001.

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1. SPECIFICATIONS

Type	:	Desktop
PC Drum Type	:	OPC (organic photoconductor)
Copying System	:	Electrostatic dry-powdered image transfer to plain paper
Print Density	:	Equivalent to 600 dpi in main scanning direction x 1800 dpi in sub-scanning direction
Paper Feeding System (Standard)	:	Two-way system 1st Drawer.....250 sheets (plain paper 80 g/m^2) 2nd Drawer....500 sheets (plain paper 80 g/m^2)
Printing Process	:	Tandem-type indirect electrostatic recording system
Exposure System	:	LED Unit exposure for each of Y, M, C, and Bk
Developing System	:	NMT system
Charging System	:	DC comb electrode Scorotron system
Ozone Removal System	:	Ozone Filters
Image Transfer System	:	Intermediate transfer belt system
Paper Separating System	:	Selecting either nonwoven fabric float or ground
Transfer Belt Cleaning	:	Blade cleaning
Fusing System	:	Belt fusing
Paper Charge Neutralizing	:	Charge Neutralizing Brush

Print Paper Type :

Paper Source		1st Drawer	2nd Drawer
Paper type	Plain paper (64 to 90 g/m^2)	❍	❍
	Translucent paper	-	-
	OHP transparencies (dedicated)	❍ 20 sheets or less	-
	Thick paper (91 to 163 g/m^2)	❍ 20 sheets or less	-
	Thick paper (164 to 209 g/m^2)	-	-
	Postcards	❍ 20 sheets or less	-
Paper dimensions	Max. (width × length)	311 × 457 mm	Metric A3L Inch 11 × 17
	Min. (width × length)	90 × 140 mm	Metric B5L/C Inch 8-1/2 × 11

❍: Reliably fed -: Feeding prohibited

Warming-up Time : 5 min. or less (at ambient temperature of 20 °C and rated source voltage)

Print Speed :

Full Color	Less than 15 sec. (A4C)
Black	Less than 12 sec. (A4C)

(1st Drawer, full size)

Power/Current Consumption (printer only):

Roller Heater Lamps H1, 2, and 3 (rating)	Max. Power Consumption
110 V, 120 V, 127 V, 220-240 V, 650 W	US: Less than 1.3 kW Europe: Less than 1.5 kW

Power Requirements : 110 V, 120 V, 127 V: 15 A, 60 Hz
220 to 240 V: 10 A, 50/60 Hz

Environmental Conditions:

Temperature	10 to 30 °C (with a fluctuation of 10 °C or less per hour)
Humidity	25 to 85 % (with a fluctuation of 20 % or less)
Ambient Illumination	3,000 lux or less
Levelness	1° (1.75/100 or less)

Dimensions : Printer + 2nd Drawer
Width..... 596 mm(23-1/2 inch)
Depth ..... 730 mm(28-3/4 inch)
Height..... 523 mm(20-1/2 inch)

Weight : Printer + 2nd Drawer: 85 kg(187-1/2 lbs)

2. PRECAUTIONS FOR INSTALLATION

2-1. Installation Site

To ensure safety and utmost performance of the printer, the printer should NOT be used in a place:

- Where it will be subjected to extremely high or low temperature or humidity.
- Where it will be subjected to sudden fluctuations in either temperature or humidity.
- Which is exposed to direct sunlight.
- Which is in the direct air stream of an air conditioner, heater or ventilator.
- Which has poor ventilation or is dusty.
- Which does not have a stable, level floor or where it will receive undue vibration.
- Which is near any kind of heating device.
- Which is near volatile flammables (thinner, gasoline, etc.).
- Where it may be splashed with water.
- Which puts the operator in the direct stream of exhaust from the printer.
- Where ammonia gas might be generated.

2-2. Power Source

- If any other electrical equipment is sourced from the same power outlet, make sure that the capacity of the outlet is not exceeded.
- Use a power source with little voltage fluctuation.
- Never connect by means of a multiple socket any other appliances or machines to the outlet being used for the printer.
- Ensure that the printer does not ride on the power cord or communications cable of other electrical equipment, and that it does not become wedged into or underneath the mechanism.
- Make the following checks at frequent intervals:

✻ Is the power plug abnormally hot?
✻ Are there any cracks or scrapes in the cord?
✻ Has the power plug been inserted fully into the outlet?
✻ Does something, including the printer itself, ride on the power cord?

Use an outlet with a capacity of 110/120/127 V, 15 A or more. 220-240 V, 10 A or more.

2-3. Grounding

- Always ground the printer to prevent receiving electrical shocks in the case of electrical leakage.
- Connect the ground wire to the ground terminal of the outlet or a grounding contact which complies with the local electrical standards.
- Never connect the grounding wire to a gas pipe, the ground wire for a telephone, lightning arrester, or a water pipe for fear of fire and electrical shock.

3. PRECAUTIONS FOR USE

3-1. To ensure that the printer is used in an optimum condition

- Never place a heavy object on the printer or subject the printer to shocks.
- Insert the power plug all the way into the outlet.
- Do not attempt to remove any panel or cover which is secured while the printer is making prints.
- Do not turn OFF the printer while it is making prints.
- Provide good ventilation when making a large number of prints continuously.
- Never use flammable sprays near the printer.
- If the printer becomes inordinately hot or produces abnormal noise, turn it OFF and unplug it.
- Do not turn ON the power switch at the same time when you plug the power cord into the outlet.
- When unplugging the power cord, do not pull on the cord; hold the plug and pull it out.
- Do not bring any magnetized object near the printer.
- Do not place a vase or vessel containing water on the printer.
- Be sure to turn OFF the power switch at the end of the workday or upon power failure.
- Use care not to drop paper clips, staples, or other small pieces of metal into the printer.

3-2. Operating Environment

The operating environmental requirements of the printer are as follows.

- Temperature: 10 to 30 °C
- Humidity: 25 to 85 %
- Rate of temperature change: 10 °C/h
- Rate of humidity change: 20 %/h

3-3. Power Requirements

The power source voltage requirements are as follows.

- Voltage fluctuation: AC 110, 120, 220, 240 V
  ± 10 % (printing performance assured)
  (127 V areas only; between -10 % and +6 %)
  +10 %
  -15 % (paper feeding performance assured)
- Frequency fluctuation: 50/60 Hz ± 0.3 %

4. HANDLING OF THE CONSUMABLES

Before using any consumables, always read the label on its container carefully.

- Paper can be easily damaged by dampness. To prevent absorption of moisture, store paper, which has been removed from its wrapper but not loaded in the drawer, in a sealed plastic bag in a cool, dark place.
- Keep consumables out of the reach of children.
- Do not touch the PC Drum with bare hands.
- The same sized paper is of two kinds, short grain and long grain. Short grain paper should only be fed through the printer crosswise, long grain paper should only be fed lengthwise.
- If your hands become soiled with toner, wash them with soap and water.
- Do not throw away any used consumables (PC Drum, starter, toner, etc.). They are to be collected.
- Do not burn, bury in the ground, or throw into the water any consumables (PC Drum, starter, toner, etc.).
- Do not store consumables in a place which:

✻ Is hot and humid.
✻ Is subject to direct sunlight.
✻ Has an open flame nearby.

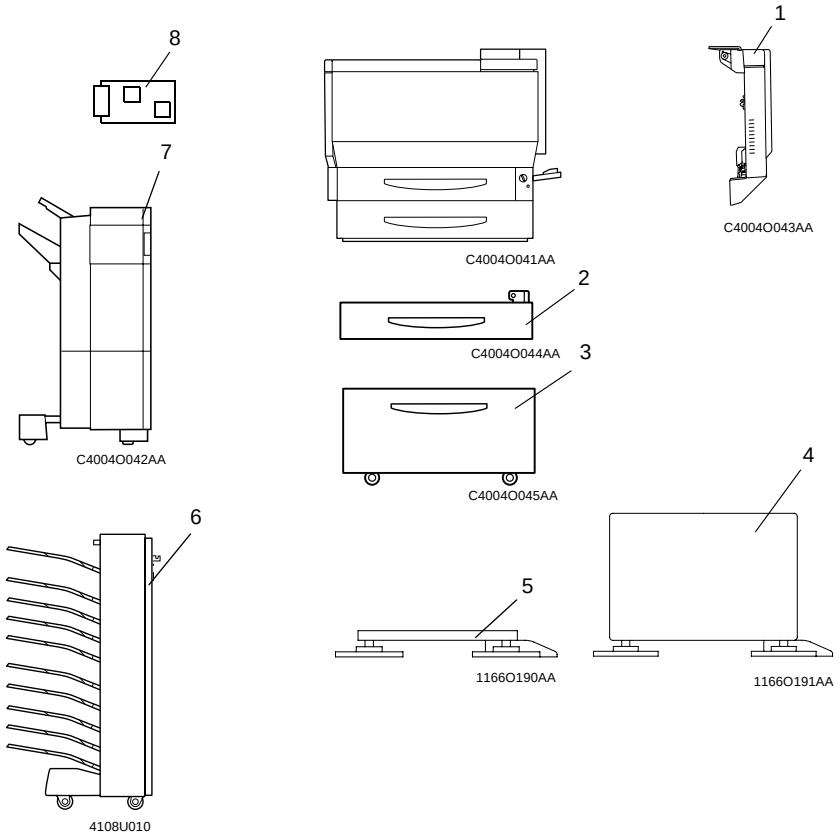
5. OTHER PRECAUTIONS

Use the following precautions when performing service jobs for a printer that uses a laser.

- When a service job needs to be performed in the laser beam path, such as when working around the printer head or PC Drum, be sure first to unplug the power cord of the printer from the outlet.
- If the job requires that the power cord be left plugged in, observe the following precautions.

1. Take off your watch, ring and any other reflective object and wear laser protective goggles.
2. Keep users away from the job site.
3. Do not bring a highly reflective tool into the laser beam path during the service job.

6. SYSTEM OPTIONS



1. Duplex Unit AD-14
2. Paper Feed Unit PF-118
3. Large Capacity Cabinet PF-117
4. Copy Desk
5. Copy Table
6. 10-Mailbin Sorter JS-1002
7. Finisher FN-107, FN-108
8. Data Terminal DT-105 (USA, Canada Only)

7. Printer Power OFF

To turn OFF the printer, be sure to operate keys on the Control Panel by following the procedure given below.

<Procedure>

1. Press the Menu key. Then, the following message will appear.

Functions Print Pages

2. Press the ▼ key to select the following display.

Functions Shut Down

3. Press the Set key.
4. Press the ▼ key to select the following display.

Shut Down Shut Down System

5. Press the Set key. Then, the following message will appear.

Shut Down in progress

6. After the lapse of about 30 sec., the following message will appear.

Safe to power off the system

7. Make sure that the above message is being displayed. Then, turn OFF the Power Switch.

MECHANICAL/ ELECTRICAL

CONTENTS

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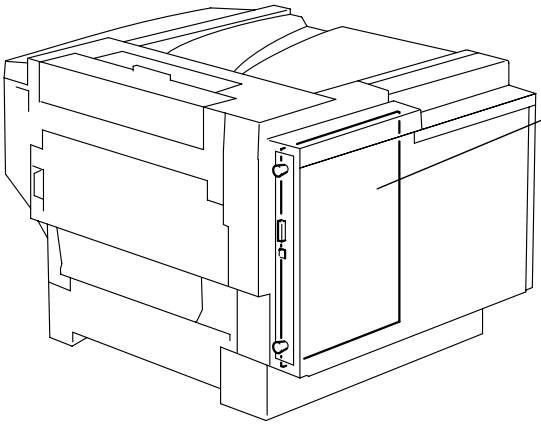
1. Layout



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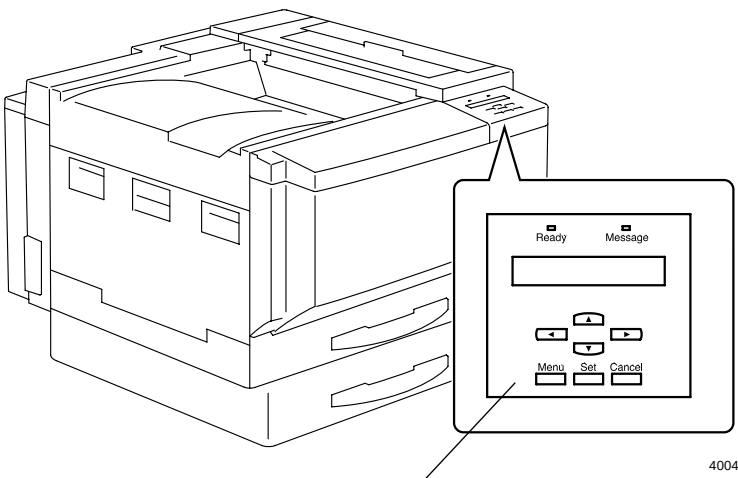

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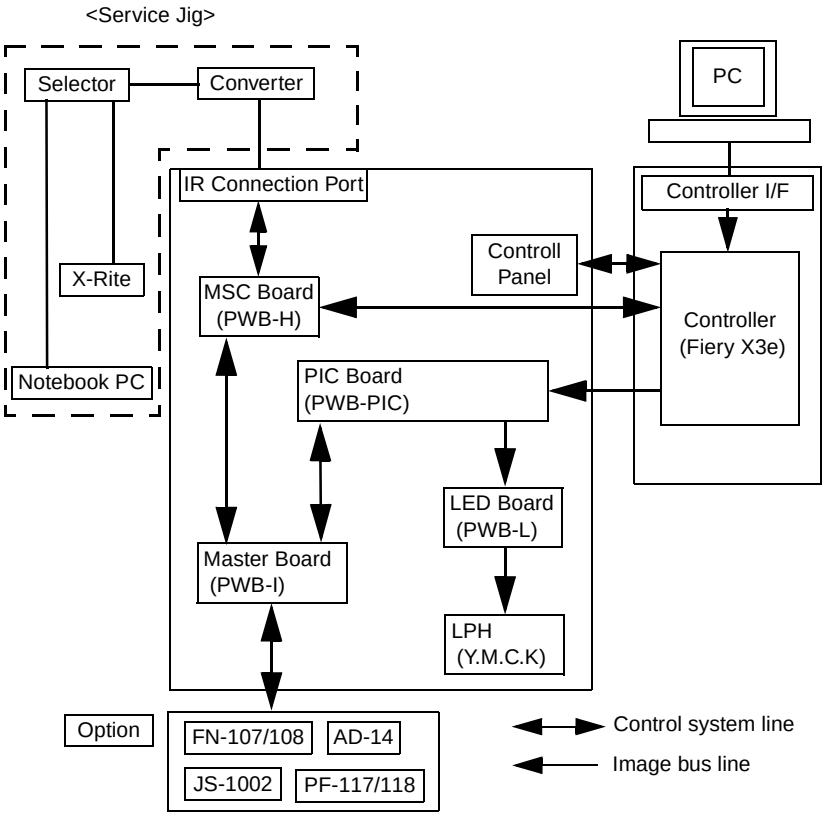
2. System Control Block Diagram



DIS/REASSEMBLY, ADJUSTMENT

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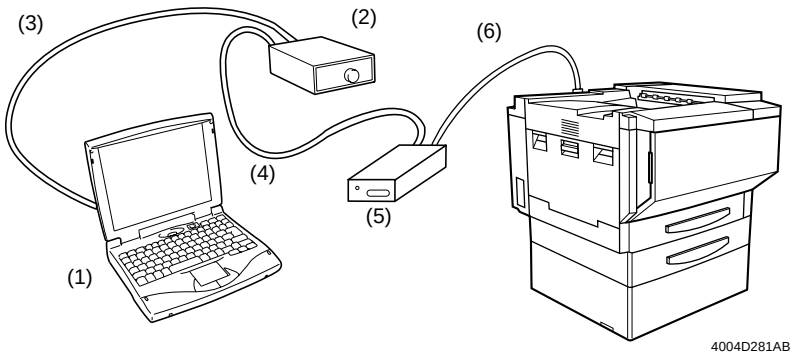
1. Service Jig

1-1. Setting up the Service Jig

NOTE

- *Follow the procedure given below to set up the service jig whenever making adjustments.*

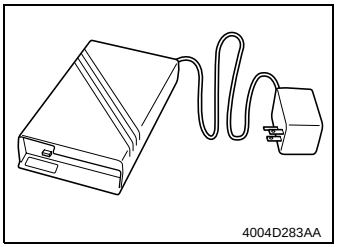
1. Setting Up the Servicing Equipment



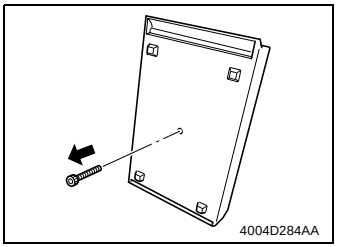
(1) Notebook PC: Starts the External Controller for adjustment.
(2) Selector: Swiches between the Notebook PC and X-raite,Printer.
(3) RS232C straight cable: Connects between COM1 port of the Notebook PC and the connector C of the selector.
(4) RS232C straight cable: Connects between the converter and the connector B of the selector.
(5) Converter: Converts the RS422 connector to the RS232 connector.
(6) IR Port cable: Connects between the Printer and the converter.

NOTE

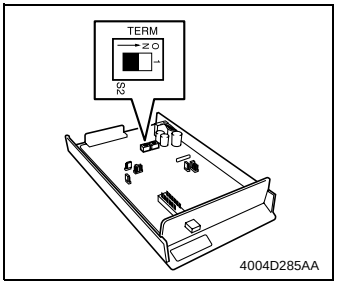
- *Do not turn on any equipment until you are instructed to do so.*



2. Remove the converter from its box.



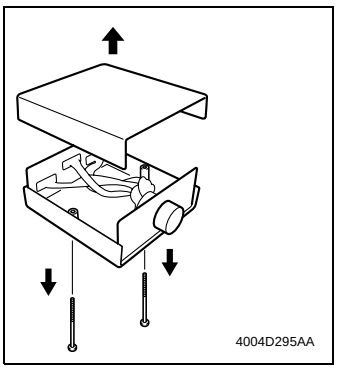
3. Remove the screw at the bottom of the converter, and then remove the upper cover.



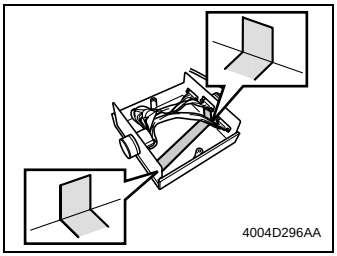
4. Set the TERM switch(S2) to ON as shown in the illustration.

NOTES

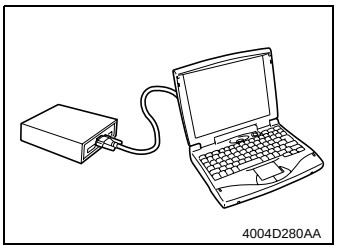
- *Set the button on the converter to "Normal".*
- *In order to reduce the risk of damage to the circuit board due to static electricity, do not Click the circuit board pattern.*
- *Do not change the setting of any switches other than those specified.*



5. Remove the selector from its box.
6. Remove the two screws from the selector, and then remove the upper cover.



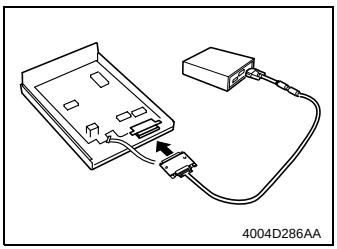
7. Affix aluminum tape to the converter as shown in the illustration.



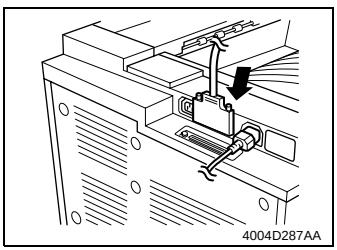
8. Using the RS232 straight cable(3), connect the COM 1 port of the computer to port C on the selector.

NOTE

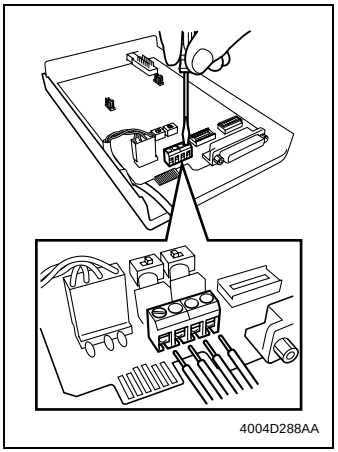
- *Make sure that the RS232 straight cable is connected to the COM 1 port of the computer.*



9. Using RS232 straight cable(4), connect DB25 of the converter to port A of the selector.



10. Connect the IR port cable(6) to the Printer.



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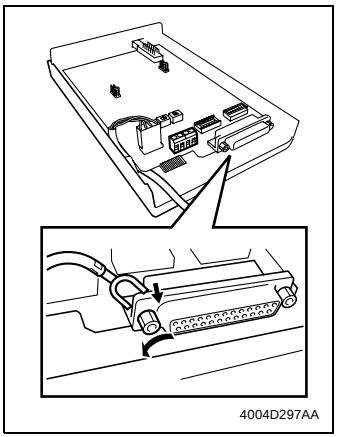
11. Using a common screwdriver, tighten the four screws shown in the illustration, and then connect the harnesses of the IR port cable to the terminals on the converter.

    TXA terminal: Brown harness
    TXB terminal: Red harness
    RXA terminal: Orange harness
    RXB terminal: Blue harness

NOTE

- *Be sure to connect the harnesses of the IR port cable to the specified terminals.*



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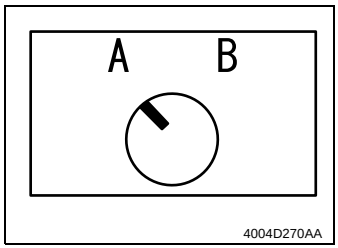
12. Loosen the screw of the terminal, and then attach the ground wire as shown.
13. Attach the upper cover of the converter.
14. Plug the power cable of the converter into an electrical outlet.

1-2. Starting the External Panel Controller

NOTES

- *Start up the External Panel Controller on the Notebook PC before turning on the printer.*
- *If an error message appears, follow the instructions described in the message.*
- *Do not quit the External Panel Controller while it is being used.If it is quitted, restart the printer and the External Panel Controller.*



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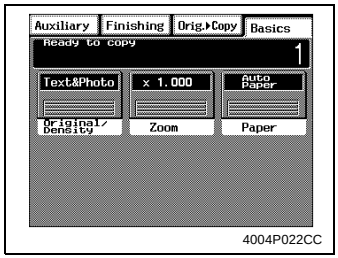
1. Start up the External Panel Controller on the Notebook PC.
2. Turn ON the power switch.
3. Make sure that the selector knob is set to “A”.



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4. Check that the External Panel appears in the computer screen, and then display the basic screen.

NOTE

- *If the basic Screen does not appear in the External Panel Controller, turn the printer off.*
  Restart the External Panel Controller, and then the printer on again.

1-3. Quitting the External Panel Controller

1. Call the initial screen of the External Panel Controller.
2. Check that the message display in the control panel changes from “Alert Printing suspended” to “Info”.

✻ The message will change to “Info” in about 20 sec.

3. Exit the External Panel Controller.
4. Unplug the power cord of the converter.

2. ADJUSTMENTS

- The adjustment procedures must be carried out in the order of printer.

2-1. ADJUSTMENT REQUIREMENTS LIST

	Adjustment Item	Requirements	Ref. Page
Printer	Top Margin	5.0 ± 1.0 mm	☞ D-8
	Left Margin	3.0 ± 1.0 mm	☞ D-10
	Dup. Left Margin	3.0 ± 1.0 mm	☞ D-11
	Paper Loop	Test print tilts ± 0.	☞ D-12
	Color Shift Correction	FD, CD, and tilt ± 0 with reference to Bk.	☞ D-13
	Fuser Nip	7 ± 0.5 mm	☞ D-20
	Fuser Temp.	—	☞ D-22
	Fuser Speed	—	☞ D-23
	PRT Max Density	—	☞ D-24
	PRT Highlight	—	☞ D-24
	Background Voltage Margin	—	☞ D-25
	X-Rite Calibration	—	☞ D-26

2-2. ELECTRICAL/IMAGE ADJUSTMENT

(1) Accessing the Tech. Rep. Mode

1. Click the Utility key.
2. Click “Meter Count”.
3. Click the following keys in this order:
   Stop → 0 → 0 → Stop → 0 → 1

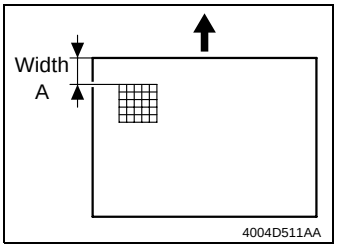
(2) Producing a Test Print

1. Call the Tech. Rep. Mode to the screen.
2. Click “Test Print”.
3. Select the desired test pattern type.
4. Make the necessary settings.
5. Click the Start key.

✻ Click the Stop key to terminate the Test Print function.

(3) Top Margin

Requirement



Width A on the test pattern produced should fall within the following range.

Specifications	Adjustment Mode	Setting Range
5.0 or 7.0 ± 1.0 mm	Top Margin	-2.0 mm to +2.0 mm

✻ The leading edge erase width is set to 5 mm or 7 mm by “Erase” under “Administrator Mode.”

This adjustment must be made in any of the following cases:

- *The LED Unit has been replaced.*
- *The paper type has been changed.*
- *The image on the* print *deviates in the FD direction.*
- *A faint image occurs on the leading edge of the image.*
- *A misfeed occurs at the 2nd image transfer section.*

Adjustment Procedure

1. Call the Tech. Rep. Mode to the screen.
2. Click these keys in this order: “Machine Adjust” → “PRT Area” → “Top Margin.”
3. Load the 1st Drawer with A3 plain paper.
4. Select plain paper on the Paper Type Setting Dial.
5. Click the Start key to let the printer produce a test pattern.
6. Check the dimension of width A on the test pattern.

✻ If width A is outside the specified range:

7. Click “Paper Send Position” and then change the setting using the Up/Down key.

Adjustment Instructions

If width A is longer than the specifications, make the setting value smaller than the current one.

If width A is shorter than the specifications, make the setting value greater than the current one.

---

8. Click the Start key to let the printer produce a test pattern.
9. Check the dimension of width A on the test pattern.
10. If width A is outside the specified range, change the setting again and make a check again.
11. If width A falls within the specified range, Click “MENU.”
12. Following the same procedure, adjust for thick paper and OHP.
13. Go back to the initial Tech. Rep. Mode screen.
14. Click “Test Print.”
15. Select “Halftone Pattern.”

16. Select “Cyan,” “SINGLE,” and “HYPER.”
17. Click the Clear key to clear the density setting.
18. Enter “255” from the 10-Key Pad.
19. Click the Start key to let the printer produce a test pattern.
20. Check to see if the image on the leading and trailing edges of the test pattern is faint.

✻ If the image is faint:
21. Click these keys in this order: “Machine Adjust” → “PRT Area” → “Top Margin.”
22. Click “2nd Transfer Timing” and then use the Down key to decrease the setting.

NOTE

- *Decreasing the setting makes transfer timing faster. An abnormally low setting could, however, result in a paper misfeed.*

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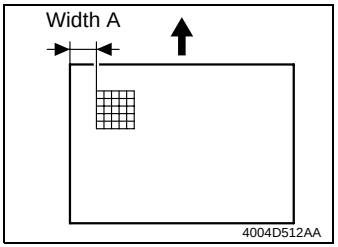
23. Click “MENU.”
24. Produce a halftone test pattern again.
25. Check the image on the leading and trailing edges of the test pattern.
26. If the image on the leading and trailing edges of the test pattern is faint, change the setting and make a check again.

(4) Left Margin

Requirement



Width A on the test pattern produced should fall within the following range.

Specifications	Adjustment Mode	Setting Range
3.0 ± 1.0 mm	Left Margin	-3.0 mm to +3.0 mm

This adjustment must be made in any of the following cases:

- *The LED Unit has been replaced.*
- *A paper feed unit has been added.*
- *The image on the* print *deviates in the CD direction.*

Adjustment Procedure

1. Call the Tech. Rep. Mode to the screen.
2. Click these keys in this order: “Machine Adjust” → “PRT Area” → “Left Margin.”
3. Load the 1st Drawer with A3 plain paper.
4. Select plain paper on the Paper Type Setting Dial.
5. Select the 1st Drawer.
6. Click the Start key to let the printer produce a test pattern.
7. Check the dimension of width A on the test pattern.

✻ If width A is outside the specified range:

8. Click “1st” and then change the setting using the Up/Down key.

Adjustment Instructions

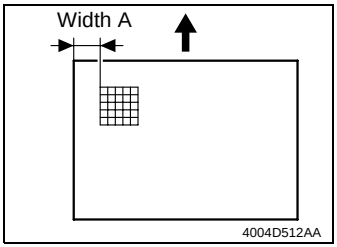
If width A is longer than the specifications, make the setting value smaller than the current one.

If width A is shorter than the specifications, make the setting value greater than the current one.

9. Click the Start key to let the printer produce a test pattern.
10. Check the dimension of width A on the test pattern.
11. If width A is outside the specified range, change the setting again and make a check again.
12. If width A falls within the specified range, Click “MENU.”
13. Following the same procedure, adjust for all other paper sources.

(5) Dup. Left Margin

Requirement



Width A on the test pattern produced should fall within the following range.

NOTE

- *Make this check with the backside of the test pattern produced.*

Specifications	Adjustment Mode	Setting Range
3.0 ± 1.0 mm	Dup. Left Margin	-3.0 mm to +3.0 mm

This adjustment must be made in any of the following cases:

- *The Duplex Unit has been set up.*
- *The image on the backside of the 2-sided print deviates in the CD direction.*

Adjustment Procedure

1. Call the Tech. Rep. Mode to the screen.
2. Click these keys in this order: “Machine Adjust” → “PRT Area” → “Dup. Left Margin.”
3. Load the 1st Drawer with A3 plain paper.
4. Select plain paper on the Paper Type Setting Dial.
5. Select the 1st Drawer.
6. Click the Start key to let the printer produce a test pattern.
7. Check the dimension of width A on the test pattern.

✻ If width A is outside the specified range:

8. Click “1st” and then change the setting using the Up/Down key.

Adjustment Instructions

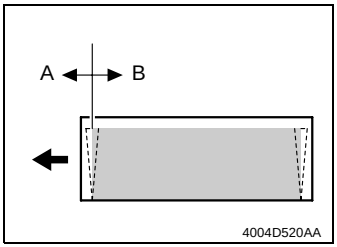
If width A is longer than the specifications, make the setting value smaller than the current one.

If width A is shorter than the specifications, make the setting value greater than the current one.

9. Click the Start key to let the printer produce a test pattern.
10. Check the dimension of width A on the test pattern.
11. If width A is outside the specified range, change the setting again and make a check again.
12. If width A falls within the specified range, Click “MENU.”
13. Following the same procedure, adjust for all other paper sources.

(6) Paper Loop

Requirement



The test pattern produced should not deviate in the direction of either A or B.

Adjustment Mode	Setting Range
Paper Loop	-5 to +5

This adjustment must be made in any of the following cases:

- *The void image along the leading edge varies from one* printer *to another.*
- *Paper skew occurs.*
- *Paper is folded.*
- *Paper misfeed occurs.*

Adjustment Procedure

1. Select the paper source, for which the adjustment is to be made.
2. Call the Tech. Rep. Mode to the screen.
3. Click “Test Print.”
4. Click “Halftone Pattern.”
5. Click the Start key and then immediately Click the Stop key to let the printer produce the test pattern.
6. Fold the test pattern in half lengthwise to check for deviation in the pattern.

✻ If there is any deviation in the pattern:

7. Go back to the Tech. Rep. Mode initial screen.
8. Click “Machine Adjust.”
9. Click “Paper Loop.”
10. Select the paper and paper source to be adjusted.
11. Click the Clear key to clear the current setting.
12. Enter the setting from the 10-Key Pad.

✻ Use the Access key to select the sign of + or -.

Setting Instructions

If the test pattern deviates in the direction of A, decrease the setting.
If the test pattern deviates in the direction of B, increase the setting.

13. Click “MENU.”
14. Let the printer produce a test pattern again.
15. Check the test pattern for deviation.
16. If there is any deviation, change the setting for Paper Loop and make a check again.
17. If there is no deviation, use the same procedure to adjust for all other paper types and sources.

(7) Color Shift Correction

A. Administrator Mode

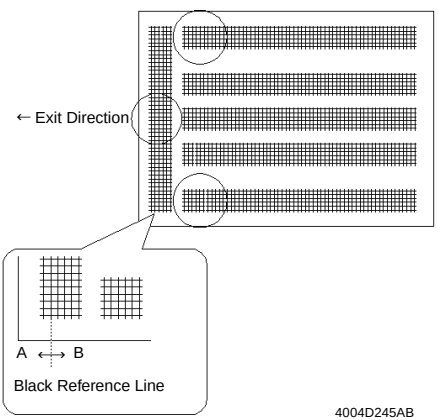
This adjustment must be made in the following case:

- *Color shift occurs.*

Adjustment Procedure

1. Click the Utility key on the control panel.
2. Click these keys in this order: “Administrator Mode” → “Administrator Mode 2/2” → “Expt. User’s Mode” → “Expt. User’s Mode 1/2.”
3. Click “Color Shift Correction (Bk).”
4. Click the Start key to let the printer produce a test pattern.
5. Fold the test pattern in half lengthwise.
6. Check to see if the black reference lines deviate or not.
7. If the lines deviate, change the setting (θ) using the Up/Down key and go back to step 4. If they do not deviate, Click [Enter].

Setting Instructions

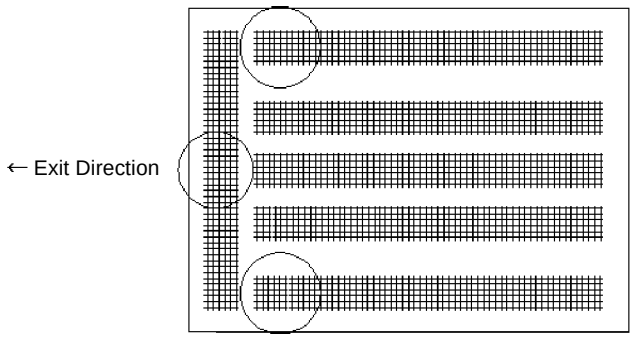


If the line deviates in the direction of A, decrease the setting.
If the line deviates in the direction of B, increase the setting.

8. Click “Color Shift Correction (C).”
9. Click the Start key to let the printer produce a test pattern.
10. With reference to a cross of the black reference line, check to see if any of the cyan, magenta, and yellow crosses deviates.

11. Click the color of the deviated cross.
12. Change the settings for X, Y, and θ using the Up/Down key.

Setting Instructions



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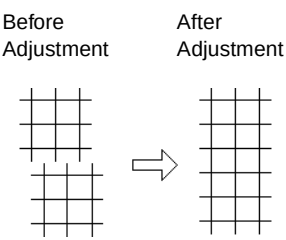
For X direction:
[X adjustment] Check points: A1 and A2



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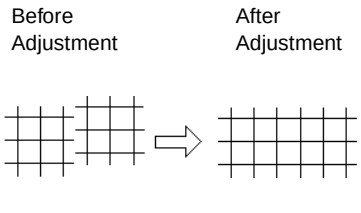
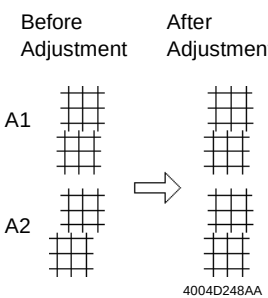
For Y direction:
[Y adjustment] Check point: B



For tilt:
[θ adjustment] Check points: A1 and A2

Match the amount of deviation of A2 with that of A1.



13. Click the Start key to let the printer produce a test pattern.
14. With reference to a cross of the black reference line, check to see if any of the cyan, magenta, and yellow crosses deviates.
15. If any of the crosses deviates, change the setting and make a check again.

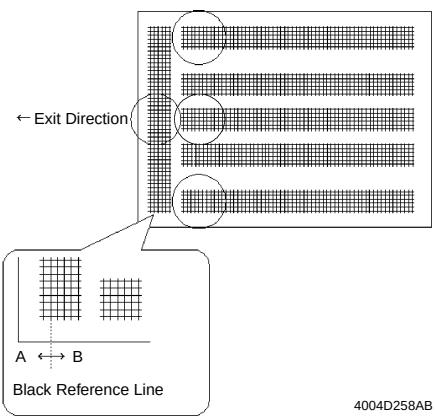
This adjustment must be made in the following case:

- *Color shift occurs.*

Adjustment Procedure

1. Make the “Paper Loop” adjustment.
   ☞ D-12
2. Go back to the Tech. Rep. Mode initial screen.
3. Click these keys in this order: “Machine Adjust” → “Color Shift Correction.”
4. Click “Color Shift Correction (Bk).”
5. Click the Start key to let the printer produce a test pattern.
6. Fold the test pattern in half lengthwise.
7. Check to see if the black reference lines deviate or not.
8. If the lines deviate, change the setting (θ) using the Up/Down key and go back to step 4. If they do not deviate, Click the menu key.

Setting Instructions



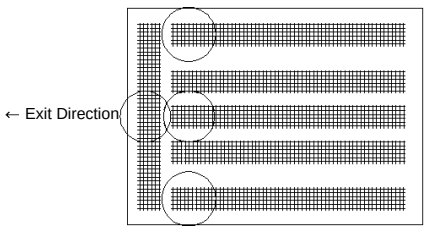
If the line deviates in the direction of A, decrease the setting.
If the line deviates in the direction of B, increase the setting.

9. Click “Color Shift Correction (C).”
10. Click the Start key to let the printer produce a test pattern.
11. With reference to a cross of the black reference line, check to see if any of the cyan, magenta, and yellow crosses deviates.

12. Click the color of the deviated cross.
13. Change the settings for X, Y, θ, and BOW using the Up/Down key.

Setting Instructions

If the line deviates in the direction of A, decrease the setting.
If the line deviates in the direction of B, increase the setting.



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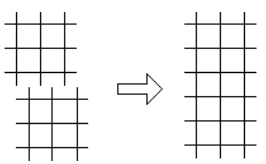
For X direction:
[X adjustment] Check points: A1 and A2

Before Adjustment

After Adjustment



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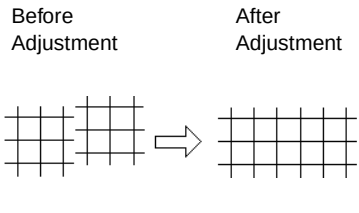
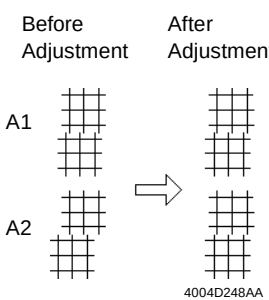
For Y direction:
[Y adjustment] Check point: B

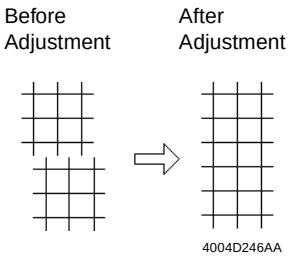


For tilt:
[θ adjustment] Check points: A1 and A2

Match the amount of deviation of A2 with that of A1.



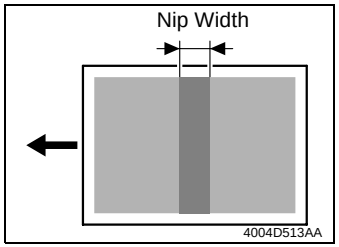
[Bow adjustment] Check points: C



14. Click the Start key to let the printer produce a test pattern.
15. With reference to a cross of the black reference line, check to see if any of the cyan, magenta, and yellow crosses deviates.
16. If any of the crosses deviates, change the setting and make a check again.

(8) Fuser Nip

Requirement



The nip width on the test pattern produced should fall within the following range.

Specifications	Adjustment Mode	Setting Range
7.0 ± 0.5 mm	Fuser Nip	—

This adjustment must be made in any of the following cases:

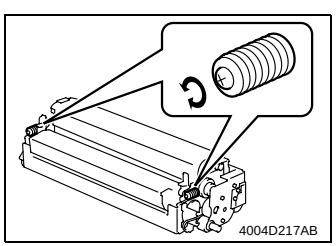
- *Fusing performance is poor.*
- *A misfeed occurs at the fusing section.*
- *Gloss failure occurs.*
- *Image problems relating to prints made on OHP transparencies occur.*

Adjustment Procedure

1. Call the Tech. Rep. Mode to the screen.
2. Click these keys in this order: “Machine Adjust” → “Fuse Nip.”
3. Load the 1st Drawer with A4 crosswise paper.
4. Select plain paper on the Paper Type Setting Dial.
5. Click the Start key to let the printer produce a test pattern.
6. Check the nip width on the test pattern.

✻ If the nip width is outside the specified range:

7. Slide out the Fusing Unit.
   ☞ Unit Replacement Manual
8. Remove the front and rear covers from the Fusing Unit.



9. Turn the adjusting screws at the front and rear to adjust the nip width.

Adjustment Instructions

If the nip width on the test pattern is longer than the specifications, loosen the adjusting screws.

If the nip width on the test pattern is shorter than the specifications, tighten the adjusting screws.

10. Reinstall the front and rear covers and the Fusing Unit in position.
11. Close the Right Door and Upper Right Door.
12. Produce a test pattern again.
13. Check the nip width on the test pattern.
14. If the nip width does not fall within the specifications, turn the adjusting screws as necessary and then make a check again.

(9) Fuser Temp.

This adjustment must be made in the following case:

- *Fusing performance is poor or offset occurs when the paper type or environmental conditions are changed.*

As a general rule, the following settings should not be changed:

- *Plain (Lower)*
- *OHP Film (Lower)*
- *Thick 1 (Lower)*
- *Thick 2 (Lower)*

Adjustment Procedure

1. Call the Tech. Rep. Mode to the screen.
2. Click these keys in this order: “Machine Adjust” → “Fuse Temp.”
3. Select the paper type.
4. Click the Clear key to clear the current setting.
5. Enter the new setting from the 10-Key Pad.

✻ Use the Access key to select the sign of + or -.

Adjustment Instructions

If fusing performance is poor, increase the setting.
If offset occurs, decrease the setting.

✻ *The temperature does not change immediately when the setting is change. Wait a while before performing the subsequent steps.*

6. Click “MENU.”
7. Go back to the Basic screen.
8. Make an ordinary print using the paper type selected in step 3.
9. Check the image on the print to ensure that there are no image problems evident.
10. If fusing performance is still poor or offset is evident, change the setting and make a check again.

(10) Fuser Speed

This adjustment must be made in the following case:

- *Brush effect or blurred image is evident as a result of changes in environmental conditions or degraded durability.*

Adjustment Procedure

1. Call the Tech. Rep. Mode to the screen.
2. Click these keys in this order: “Machine Adjust” → “Fuse Speed.”
3. Select the paper type.
4. Click the Clear key to clear the current setting.
5. Enter the new setting from the 10-Key Pad.

✻ Use the Access key to select the sign of + or -.

Adjustment Instructions

If brush effect is evident, decrease the setting.
If a blurred image occurs, increase the setting.

6. Click “MENU.”
7. Go back to the Basic screen.
8. Make an ordinary print using the paper type selected in step 3.
9. Check the image on the print to ensure that there are no image problems evident.
10. If brush effect or blurred image is still evident, change the setting and make a check again.

(11) PRT Max Density

This adjustment must be made in the following case:

- *An image quality problem is not corrected even after X-Rite Calibration has been run.*

Adjustment Procedure

1. Call the Tech. Rep. Mode to the screen.
2. Click these keys in this order: “Image Adjust” → “PRT Max Density.”
3. Select the color to be adjusted.
4. Click the Clear key to clear the current setting.
5. Enter the new setting from the 10-Key Pad.

✻ Use the Access key to select the sign of + or -.

6. When the adjustment has been made, Click “MENU” to go back to the “Image Adjust” menu screen.
7. Click “Stabilizer.”
8. Select “Stabilizer Mode.”
9. Click the Start key to validate the adjustment value.

(12) PRT Highlight

This adjustment must be made in the following case:

- *An image quality problem is not corrected even after X-Rite Calibration has been run.*

Adjustment Procedure

1. Call the Tech. Rep. Mode to the screen.
2. Click these keys in this order: “Image Adjust” → “PRT Highlight.”
3. Select the color to be adjusted.
4. Click the Clear key to clear the current setting.
5. Enter the new setting from the 10-Key Pad.

✻ Use the Access key to select the sign of + or -.

6. When the adjustment has been made, Click “MENU” to go back to the “Image Adjust” menu screen.
7. Click “Stabilizer.”
8. Select “Stabilizer Mode.”
9. Click the Start key to validate the adjustment value.

(13) Background Voltage Margin

This adjustment must be made in the following case:

- *Foggy background occurs.*

Adjustment Procedure

1. Call the Tech. Rep. Mode to the screen.
2. Click these keys in this order: “Image Adjust” → “Background Voltage Margin.”
3. Select the color to be adjusted.
4. Click the Clear key to clear the current setting.
5. Enter the new setting from the 10-Key Pad.

✻ Use the Access key to select the sign of + or -.

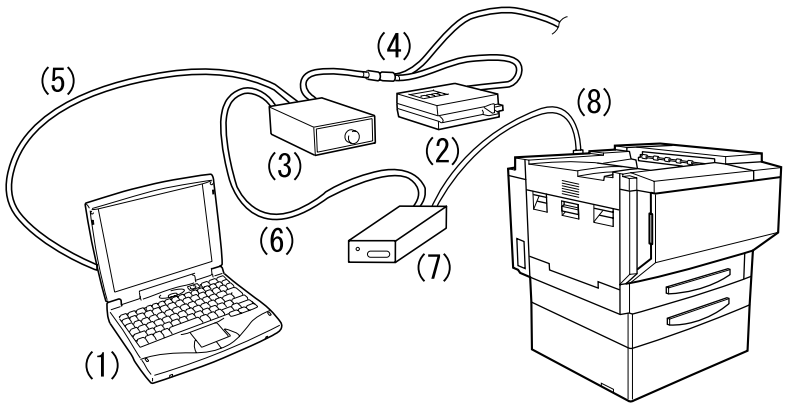
6. When the adjustment has been made, Click “MENU” to go back to the “Image Adjust” menu screen.
7. Click “Stabilizer.”
8. Select “Stabilizer Mode.”
9. Click the Start key to validate the adjustment value.

(14) X-Rite Calibration

This adjustment must be made in the following case:

- *Color reproduction performance becomes poor.*

1. Setting Up the Servicing Equipment



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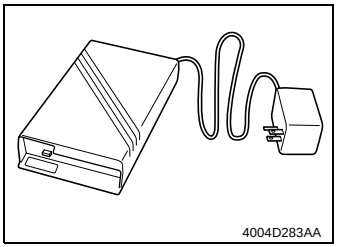
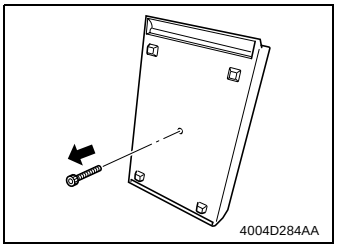
(1) Notebook PC: Starts the External Controller for adjustment.
(2) X-Rite(DTP32): Color Tone Tester
(3) Selector: Swiches between the Notebook PC and X-raite,Printer.
(4) DTP32 cable: Connects between the X-Rite and the connector A of the selector.
(5) RS232C straight cable: Connects between COM1 port of the Notebook PC and the connector C of the selector.
(6) RS232C straight cable: Connects between the converter and the connector B of the selector.
(7) Converter: Converts the RS422 connector to the RS232 connector.
(8) IR Port cable: Connects between the Printer and the converter.

NOTE

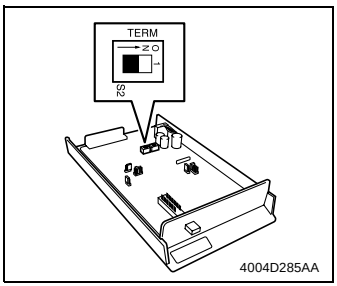
- *Do not turn on any equipment until you are instructed to do so.*



2. Remove the converter from its box.



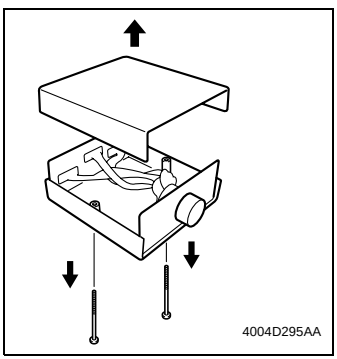
3. Remove the screw at the bottom of the converter, and then remove the upper cover.



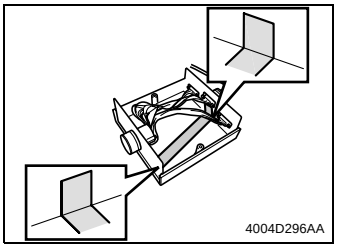
4. Set the TERM switch(S2) to ON as shown in the illustration.

NOTES

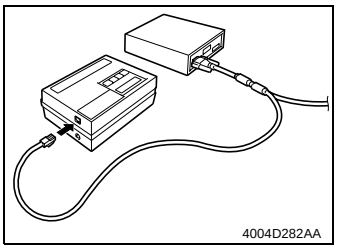
- *Set the button on the converter to "Normal".*
- *In order to reduce the risk of damage to the circuit board due to static electricity, do not Click the circuit board pattern.*
- *Do not change the setting of any switches other than those specified.*



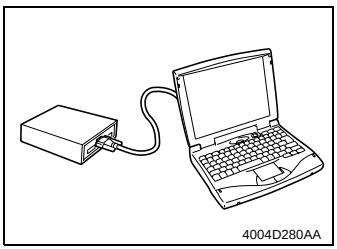
5. Remove the selector from its box.
6. Remove the two screws from the selector, and then remove the upper cover.



7. Affix aluminum tape to the converter as shown in the illustration.



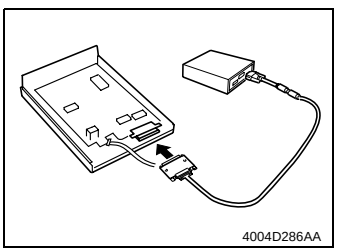
8. Insert a connector on the DTP32 cable(4) into the I/O port on the side of the X-Rite, and then insert the other connector of the cable into port B on the selector.



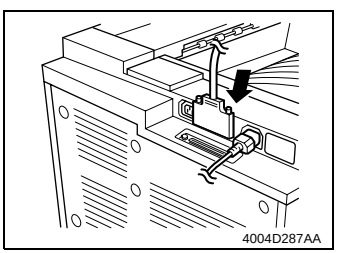
9. Using the RS232 straight cable(5), connect the COM 1 port of the computer to port C on the selector.

NOTE

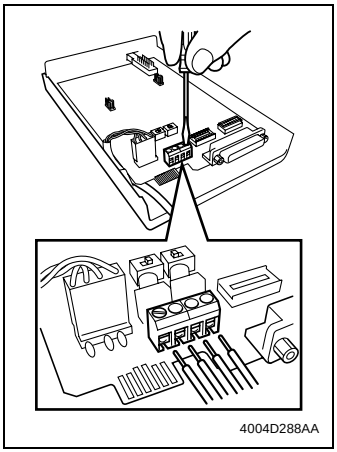
- *Make sure that the RS232 straight cable is connected to the COM 1 port of the computer.*



10. Using RS232 straight cable(6), connect DB25 of the converter to port A of the selector.



11. Connect the IR port cable(8) to the Printer.



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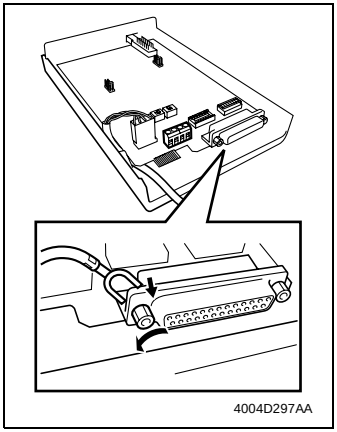
12. Using a common screwdriver, tighten the four screws shown in the illustration, and then connect the harnesses of the IR port cable to the terminals on the converter.

    TXA terminal: Brown harness
    TXB terminal: Red harness
    RXA terminal: Orange harness
    RXB terminal: Blue harness

NOTE

- *Be sure to connect the harnesses of the IR port cable to the specified terminals.*



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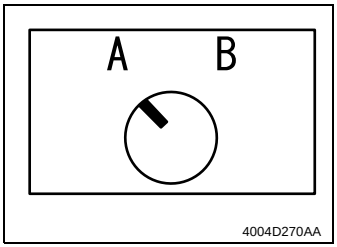
13. Loosen the screw of the terminal, and then attach the ground wire as shown.
14. Attach the upper cover of the converter.
15. Plug the power cable of the converter into an electrical outlet.
16. Plug the power cable of the X-Rite into an electrical outlet.

NOTES

- *Start up the External Panel Controller on the Notebook PC before turning on the printer.*
- *If an error message appears, follow the instructions described in the message.*
- *Do not quit the External Panel Controller while it is being used.If it is quitted, restart the printer and the External Panel Controller.*



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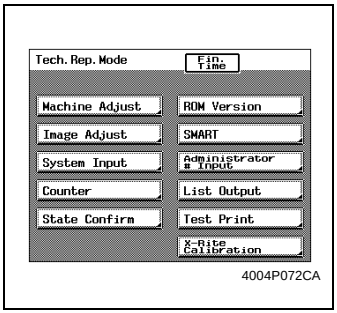
1. Start up the External Panel Controller on the Notebook PC.
2. Turn ON the power switch.
3. Make sure that the selector knob is set to “A”.



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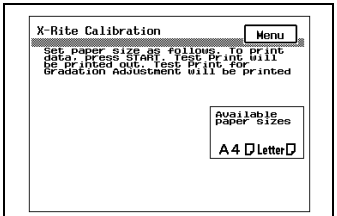
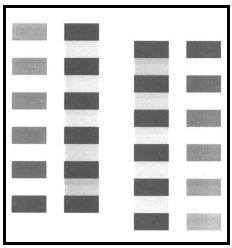
4. Check that the External Panel appears in the computer screen, and then display the Tech. Rep. Mode screen. (For details about displaying the Tech. Rep. Mode screen, refer to the “Switches On Pwb’s, Tech. Rep. Setting”.)

NOTE

- *If the basic Screen does not appear in the External Panel Controller, turn the printer off. Restart the External Panel Controller, and then the printer on again.*

5. Click “X-Rite Calibration” in the Tech.Rep.Mode screen.


X-Rite Calibration
Menu
Set paper size as follows. To print data, press START. Test Print will be printed out. Test Print for Gradation Adjustment will be printed
Available paper sizes
A4 Letter
4004D273CA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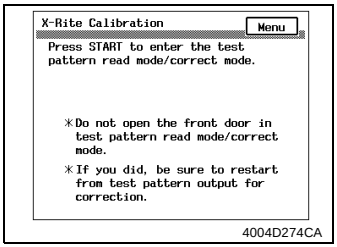
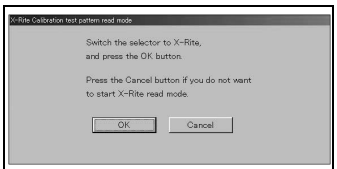
6. Check the message that appears, and then click the Start key in the External Panel Controller. Test patterns are printed for the four colors(Cyan, Magenta, Yellow, Black)

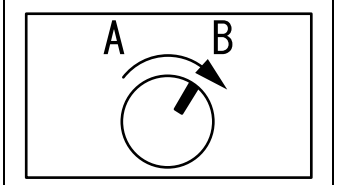
NOTE

- *Since it may take some time to output the test patterns (about 2 min.), wait until printing is finished.*


X-Rite Calibration
Menu
Press START to enter the test pattern read mode/correct mode.
*Do not open the front door in test pattern read mode/correct mode.
*If you did, be sure to restart from test pattern output for correction.
4004D274CA

7. After the test patterns are printed, check that the message appears, and then click the Start key in the External Panel Controller.


X-Rite Calibration Test pattern read mode
Switch the selector to X-Rite, and press the OK button.
Press the Cancel button if you do not want to start X-Rite read mode.
OK
Cancel
4004D275CA



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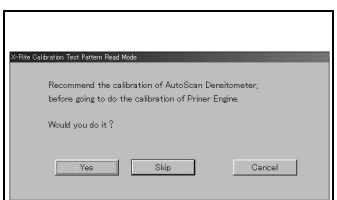
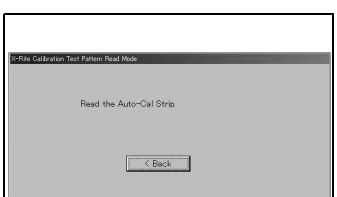
8. Check that the dialog box appears, set the selector knob to “B”, and then click “OK” in the dialog box.


X-Rite Calibration Test Pattern Read Mode
Recommend the calibration of AutoScan Densitometer, before going to do the calibration of Priner Engine.
Would you do it ?
Yes
Skip
Cancel
4004D268CA

9. Check that the dialog box appears, and then click “Yes” in the dialog box.



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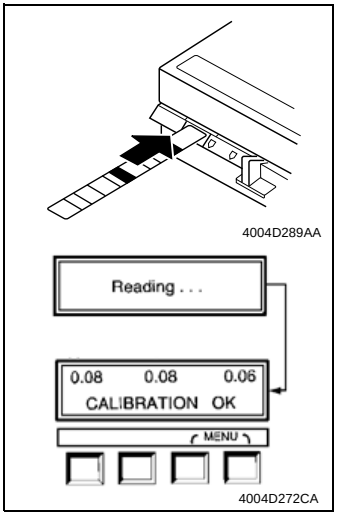
10. When the dialog box appears, the auto-cal strip can be read.
Prepare the auto-cal strip.



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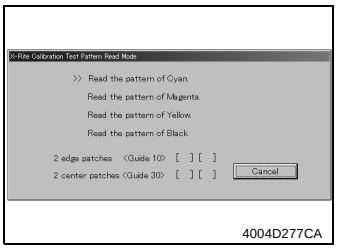
11. Insert the auto-cal strip into the X-Rite.

NOTE

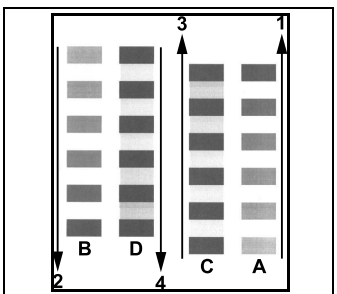
- *Insert the auto-cal strip after "INSERT CAL STRIP" appears on the X-Rite display.*

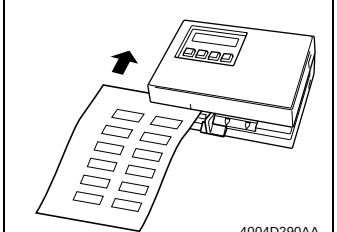

X-Rite Calibration Test Pattern Read Mode
>> Read the pattern of Cyan.
Read the pattern of Magenta.
Read the pattern of Yellow.
Read the pattern of Black.
2 edge patches <Guide 10> [ ] [ ]
2 center patches <Guide 30> [ ] [ ]
Cancel
4004D277CA

12. Check that the dialog box appears.

NOTE

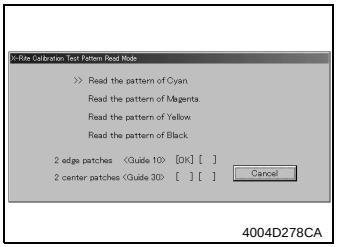
- *The dialog box appears if the auto-cal strip was read correctly.*



4004D269AA

4004D290AA

13. Prepare the cyan test pattern, set the X-Rite guide to "10", and then feed the pattern in direction "1" to read the row represented by "A". Align the test pattern with the guide, and insert the pattern into the X-Rite.

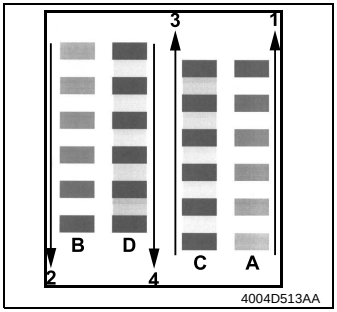
✻ The arrows indicate the direction that the pattern should be fed into the X-Rite.


X-Rite Calibration Test Pattern Read Mode
>> Read the pattern of Cyan.
Read the pattern of Magenta.
Read the pattern of Yellow.
Read the pattern of Black.
2 edge patches <Guide 10> [OK] [ ]
2 center patches <Guide 30> [ ] [ ]
Cancel
4004D278CA

14. Check that the area indicated in the dialog box appears in “OK”.

NOTE

- *The area indicated appears in “OK” if the pattern was read correctly.*

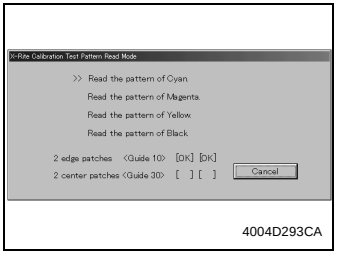


4004D513AA

15. Feed the test pattern in direction “2” to read the row represented by “B”.
    When feeding the test pattern to read the row represented by “B”, turn the paper to feed it in the correct direction without adjusting the X-Rite guide.

NOTE

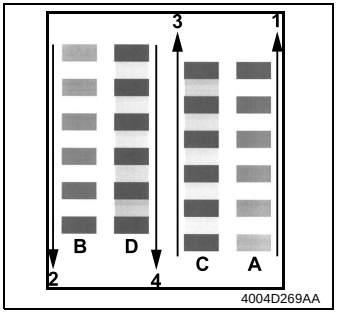
- *When reading the row in the test pattern represented by “B”, do not change the setting of the X-Rite guide.*


X-Rite Calibration Test Pattern Read Mode
>> Read the pattern of Cyan.
Read the pattern of Magenta.
Read the pattern of Yellow.
Read the pattern of Black.
2 edge patches <Guide 10> [OK] [OK]
2 center patches <Guide 30> [ ] [ ]
Cancel
4004D293CA

16. Check that the area indicated in the dialog box appears in “OK”.

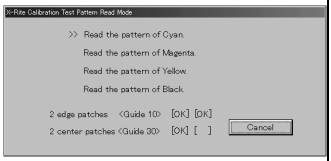
NOTE

- *The area indicated appears in “OK” if the pattern was read correctly.*



4004D269AA

17. Turn the cyan test pattern to its original orientation, set the X-Rite guide to “30”, and then feed the pattern in direction “3” to read the row represented by “C”.

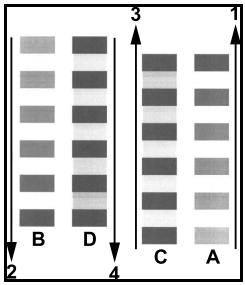

X-Rite Calibration Test Pattern Read Mode
>> Read the pattern of Cyan.
Read the pattern of Magenta.
Read the pattern of Yellow.
Read the pattern of Black.
2 edge patches <Guide 10> [OK] [OK]
2 center patches <Guide 30> [OK] [ ]
Cancel

4004D292CA

18. Check that the area indicated in the dialog box appears in “OK”.

NOTE

- *The area indicated appears in “OK” if the pattern was read correctly.*

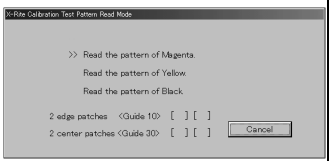


4004D269AA

19. Feed the test pattern in direction “4” to read the row represented by “D”.
    When feeding the test pattern to read the row represented by squares, turn the paper to feed in the correct direction without adjusting the X-Rite guide.
20. Check that the area indicated in the dialog box appears in “OK”.

NOTES

- *When reading the row in the test pattern represented by “D”, do not change the setting of the X-Rite guide.*
- *The area indicated appears in “OK” if the pattern was read correctly.*


X-Rite Calibration Test Pattern Read Mode
>> Read the pattern of Magenta.
Read the pattern of Yellow.
Read the pattern of Black.
2 edge patches <Guide 10> [ ] [ ]
2 center patches <Guide 30> [ ] [ ]
Cancel

4004D294CA

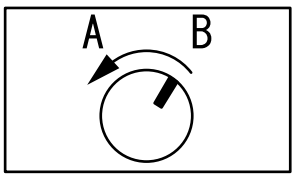
22. Check that “Read the Pattern of Cyan” disappears, and that → appears beside “Read the Pattern of Magenta”.

NOTE

- *From here on, follow the same steps to let the printer read the test patterns of magenta, yellow, and black, in that order.*

X-Rite Calibration Test Pattern Read Mode
Reading has been completed correctly.
Switch the selector to the main part
and press the OK button.
OK

4004D266CA

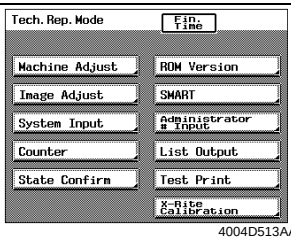


4004D267AA

23. Check that the dialog box appears, set the selector knob on the selector from “B” to “A”, and then click “OK” in the dialog box.

NOTE

- *Be sure to click “OK” only after the selector knob has been set.*



4004D513AA

24. Check that the Tech.Rep.Mode screen is displayed.
25. Click “Fine Time”.

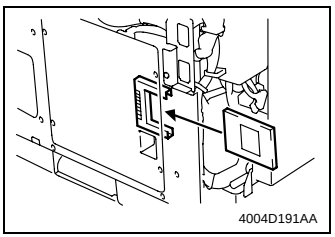
2-3. FLASH MEMORY

Software has conventionally been upgraded by replacing ROM on each board.
This printer employs flash memory for the system control IC mounted on the MSC Board.
Its contents are reprogrammed easily by performing the following steps using the IC card (memory card), into which data has been previously downloaded.

NOTE

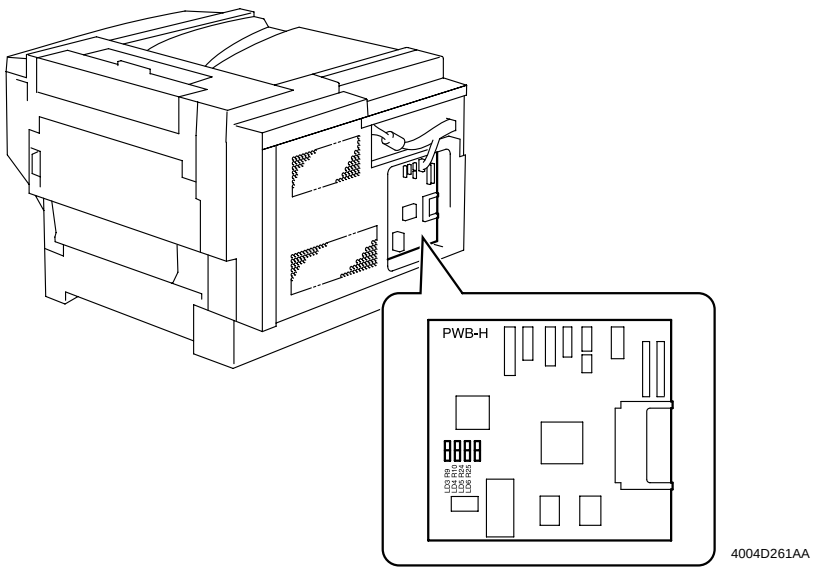
- *NEVER remove or insert the memory card with the printer power turned ON.*

1. With the Power Switch in the OFF position, unplug the power cord from the power outlet.
2. Remove the Ozone Filter.
3. Open the Left Door.
4. Remove the Waste Toner Bottle.
5. Remove the Rear Left Cover.



6. Insert the memory card into the slot.

7. Plug the power cord into the power outlet and turn ON the Power Switch.



8. LD3 and LD4 on PWB-H blink. (In the beginning, only the LD3 repeats the cycle of steady light and blinking.)

✻ F/W rewriting sequence will start.

9. When both LD3 and LD4 change their state from blinking to steady light, it indicates that the rewriting sequence is completed.

Time Required for Rewriting
It takes about 12 to 13 min. to complete the rewriting sequence.

---

10. Turn OFF the Power Switch.
11. Unplug the power cord from the power outlet.
12. Remove the memory card from the slot.
13. Check that the “ROM Version” of “Tech. Rep. Mode” matches the version marked on the memory card.

✻ Action When Data Transfer Fails
If LD3 and LD4 do not light steadily even after the lapse of about 20 min., perform the following steps.

1. Perform the data rewriting procedure again.
2. If the procedure is abnormally terminated, change the memory card for a new one and try another rewriting sequence.
3. Check the connection between the MSC Board and PIC Board (disconnected or loosely connected).
4. Check the connection between the PIC Board and PRT Board (disconnected or loosely connected).
5. Change the PIC Board and perform the rewriting procedure once again.
6. Change the PRT Board and perform the rewriting procedure once again.

✻ Action When Data Transfer Fails
If LD3 is OFF in the beginning or if it does not change from steady light to blinking state, perform the following steps.

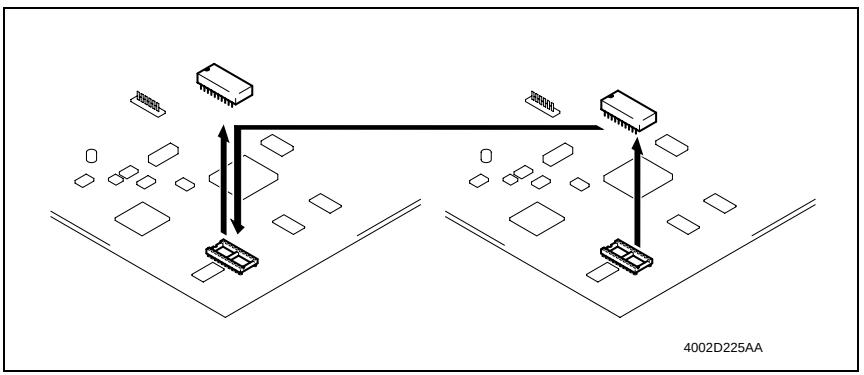
1. Check the connection of the MSC Board (disconnected or loosely connected).
2. Change the MSC Board and perform the rewriting procedure once again.

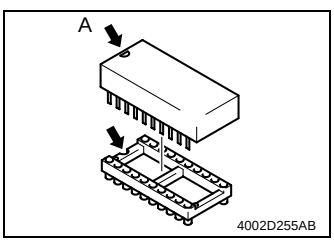
2-4. REMOUNTING RAM IC (IC5)

NOTE

- *If the MSC Board has replaced, be sure to remount RAM IC from the old to new board.*
- *If the MSC Board has been replaced and RAM IC is not to be remounted, be sure to record all data of User's Choice and Tech. Rep. Choice functions and make entries again of these numeric values. Note that the RAM IC contains no data in this case.*

1. Remove the MSC Board.
2. Remove RAM IC from the new MSC Board.
3. Remove RAM IC from the old MSC Board and remount it onto the new MSC Board.





NOTE

- *Note the alignment notch (A) on RAM IC when mounting it.*

SWITCHES ON PWBs, TECH. REP. SETTINGS

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   1-2. Starting the External Panel Controller S-5
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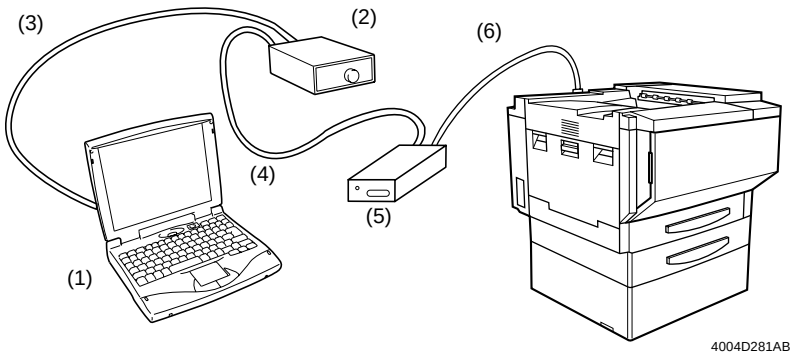
1. Service Jig

1-1. Setting up the Service Jig

NOTE

- *Follow the procedure given below to set up the service jig whenever making the adjustments given in "SWITCHES ON PWBs/TECH. REP. SETTINGS."*

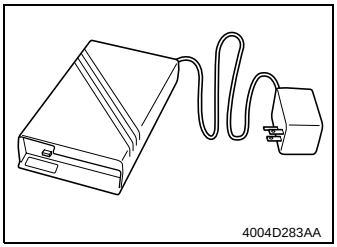
1. Setting Up the Servicing Equipment



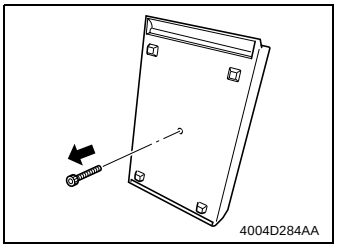
(1) Notebook PC: Starts the External Controller for adjustment.
(2) Selector: Swiches between the Notebook PC and X-raite,Printer.
(3) RS232C straight cable: Connects between COM1 port of the Notebook PC and the connector C of the selector.
(4) RS232C straight cable: Connects between the converter and the connector B of the selector.
(5) Converter: Converts the RS422 connector to the RS232 connector.
(6) IR Port cable: Connects between the Printer and the converter.

NOTE

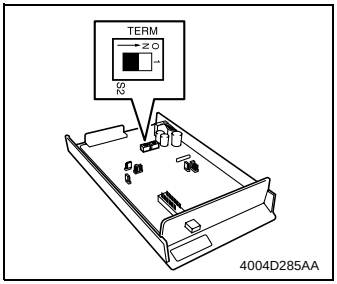
- *Do not turn on any equipment until you are instructed to do so.*



2. Remove the converter from its box.



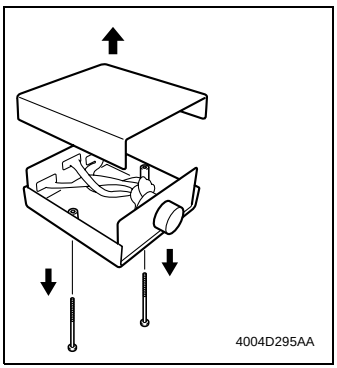
3. Remove the screw at the bottom of the converter, and then remove the upper cover.



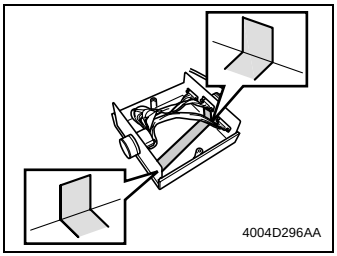
4. Set the TERM switch(S2) to ON as shown in the illustration.

NOTES

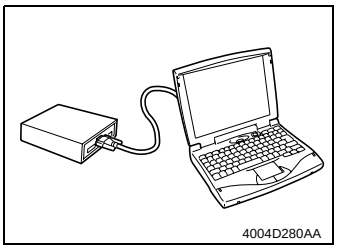
- *Set the button on the converter to "Normal".*
- *In order to reduce the risk of damage to the circuit board due to static electricity, do not Click the circuit board pattern.*
- *Do not change the setting of any switches other than those specified.*



5. Remove the selector from its box.
6. Remove the two screws from the selector, and then remove the upper cover.



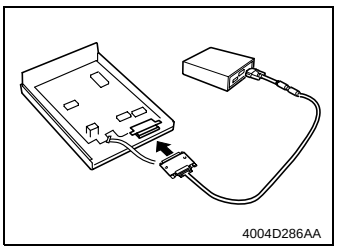
7. Affix aluminum tape to the converter as shown in the illustration.



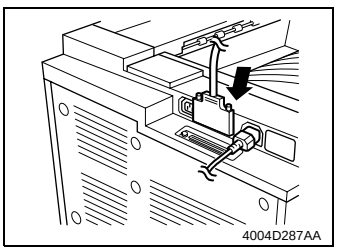
8. Using the RS232 straight cable(3), connect the COM 1 port of the computer to port C on the selector.

NOTE

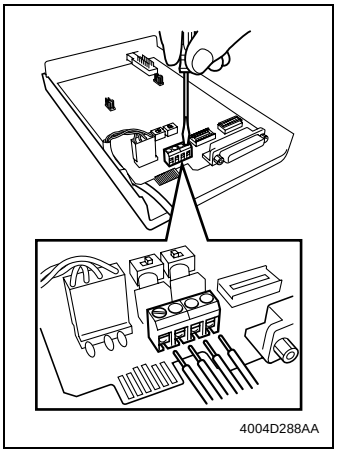
- *Make sure that the RS232 straight cable is connected to the COM 1 port of the computer.*



9. Using RS232 straight cable(4), connect DB25 of the converter to port A of the selector.



10. Connect the IR port cable(6) to the Printer.



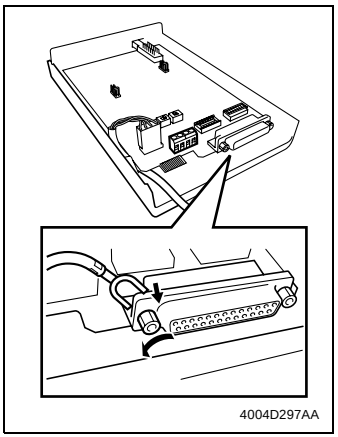
4004D288AA

11. Using a common screwdriver, tighten the four screws shown in the illustration, and then connect the harnesses of the IR port cable to the terminals on the converter.

    TXA terminal: Brown harness
    TXB terminal: Red harness
    RXA terminal: Orange harness
    RXB terminal: Blue harness

NOTE

- *Be sure to connect the harnesses of the IR port cable to the specified terminals.*



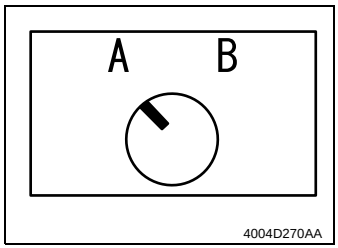
4004D297AA

12. Loosen the screw of the terminal, and then attach the ground wire as shown.
13. Attach the upper cover of the converter.
14. Plug the power cable of the converter into an electrical outlet.

1-2. Starting the External Panel Controller

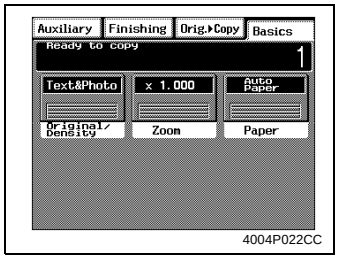
NOTES

- *Start up the External Panel Controller on the Notebook PC before turning on the printer.*
- *If an error message appears, follow the instructions described in the message.*
- *Do not quit the External Panel Controller while it is being used.If it is quitted, restart the printer and the External Panel Controller.*



4004D270AA

1. Start up the External Panel Controller on the Notebook PC.
2. Turn ON the power switch.
3. Make sure that the selector knob is set to “A”.



4004P022CC

4. Check that the External Panel appears in the computer screen, and then display the basic screen.

NOTE

- *If the basic Screen does not appear in the External Panel Controller, turn the printer off.*
  Restart the External Panel Controller, and then the printer on again.

1-3. Quitting the External Panel Controller

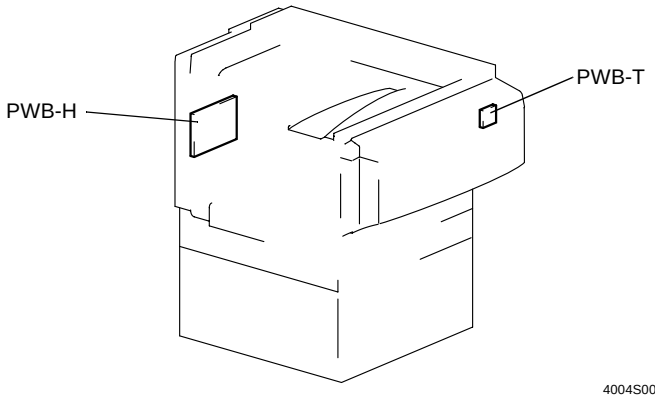
1. Call the initial screen of the External Panel Controller.
2. Check that the message display in the control panel changes from “Alert Printing suspended” to “Info”.

✻ The message will change to “Info” in about 20 sec.

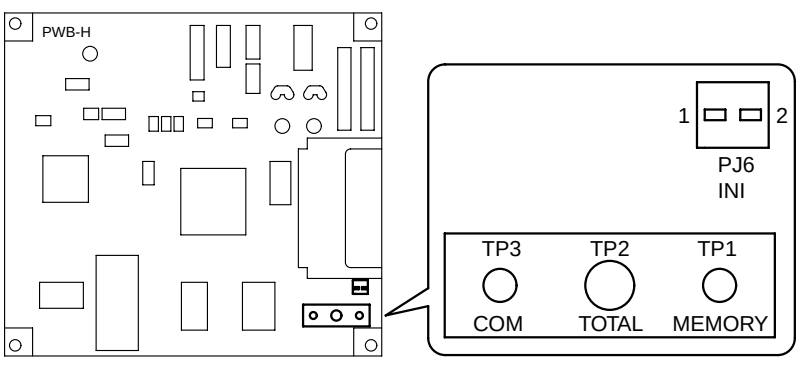
3. Exit the External Panel Controller.
4. Unplug the power cord of the converter.

2. FUNCTION OF SWITCHES AND OTHER PARTS ON PWBs

2-1. PWB Location

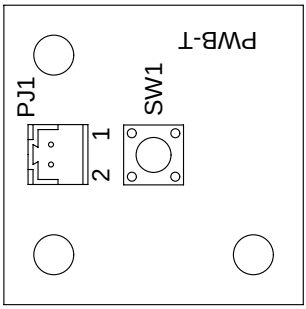


2-2. PWB-H (MSC Board)



Symbol	Name	Description
PJ2	Initialize Switch	Resets a misfeed, malfunction, and erratic display.
TP1	Memory Clear Test Point	Clears choice-related data. ***NOTE*** • *It does not, however, clear data of Electronic Counters, and SMART.*
TP3	COM Test Point	Ground used for memory clear.

2-3. PWB-T (Tech. Rep. Setting Switches Board)



4004S003AB

Symbol	Name	Description
SW1	Trouble Reset Switch	Resets the malfunction display.

(1) Clearing Procedures

Initialize

1. Turn ON the Power Switch.
2. With the circuit across pins of PJ2 closed, turn OFF then ON the Power Switch.
3. Open the circuit in about 5 seconds.

Memory Clear

1. Turn ON the Power Switch.
2. With the circuit across TP1 and TP3 closed, turn OFF then ON the Power Switch.
3. Open the circuit in about 5 seconds.
4. Check that the message “MEMORY CLEAR completed” is displayed on the Click Panel and then Click the “END” key.

NOTES

- *If the* printer *exhibits an erratic display or operation, reset and clear in the following order: Initialize → Memory Clear.*
- *If Memory Clear has been performed, make settings of various functions once again.*

(2) Data/Conditions Cleared by Reset Switches/Pins

Clearing Method / Data Cleared		Front Door Open/Close	Trouble Reset Switch SW1	Initialize PJ6	Memory Clear TP1
Misfeed display		❍	–	❍	–
Malfunction display	Fusing ROM faults	–	❍	❍	–
	Others	❍	❍	❍	–
Erratic operation/display		–	❍	❍	❍
Job/Image		–	–	–	❍
User's Choice		–	–	–	❍
Tech. Rep. Mode		–	–	–	❍
Security Mode		–	–	–	❍

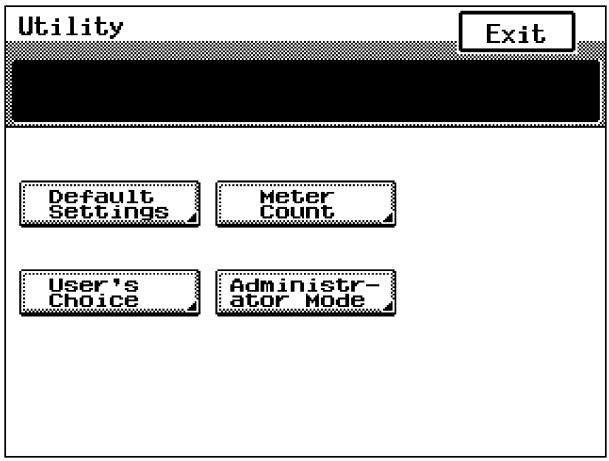
❍: Cleared –: Not cleared

3. UTILITY MODE

- Utility Mode is used to make various settings according to the user's need.

3-1. Utility Mode Selection Screen

- Click the Utility key on the control panel



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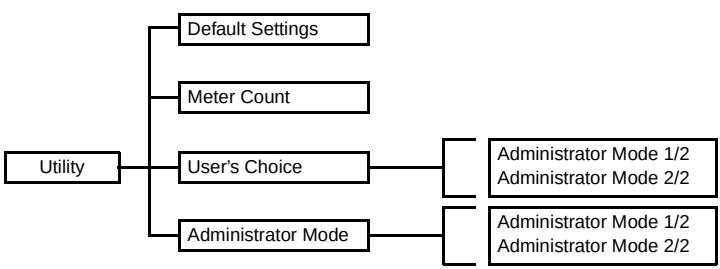
3-2. Utility Mode Function Tree



3-3. Settings in the Utility Mode

Touch Panel Display	Setting
Default Settings	Select the printing function settings established when the Power Switch is turned ON or the Panel Reset key is Clicked. ***NOTE*** • *To designate the "Current Settings," first make the necessary settings on the control panel, then Click "Current Settings."* Current Settings | **Factory Settings**
Meter Count	Displays the counts of various counters. Clicking the Start key will let the printer produce a printed page of the counts of various counters.
User's Choice	User's Choice is used to make various settings according to the user's need.
Administrator Mode	The entry of the "Administrator #" set using the Tech. Rep. mode permits the settings of the following functions.

(1) User's choice mode

• User's Choice is used to make various settings according to the user's need.

1. User's Choice Function Setting Procedure

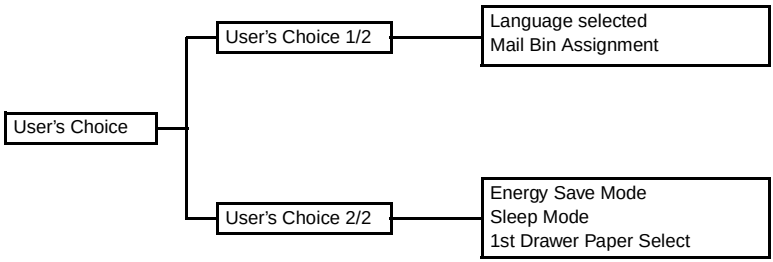
<Procedure>

1. Click the Utility key.
2. Click the "User's Choice" key.
3. Select the appropriate screen from the menu.
4. Select the appropriate function.
5. After the settings are complete, Click the "OK" key to validate the settings.

<Exiting the Mode>

• Click the "OK" key.

2. User's Choice Mode Function Tree



3. Settings in the User's Choice Mode

Touch Panel Display	Setting (The default is **Highlighted**).
Language	Select the language of the External Panel Controller. Metric Areas **ENGLISH** / GERMAN / FRENCH DUTCH / ITALIAN / SPANISH PORTUGUESE / DANISH / NORWEGIAN SWEDISH / FINISH / JAPANESE Inch Areas **ENGLISH** / FRENCH / SPANISH JAPANESE
Mail Bin Assignment	Select whether or not to designate specific bin or bins for the output via the PC when a Mailbin Finisher is mounted. 2-10 Bin: **OFF** ***NOTE*** • *When a specific bin is designated, that bin and subsequent bins are assigned for the output via the PC.* • *Example: If the 7th Bin is designated* *The 7th to 10th Bins will be assigned for the output via the PC.*

Touch Panel Display	Setting (The default is **Highlighted**).
Energy Save Mode	Select the time it takes the printer to enter the Energy Saver mode after a print cycle has been completed or the last key operated. Use the 10-Key Pad to set the time. 1 to 240 (**15 min.**)
Sleep Mode	Select the time it takes the Sleep function, which shuts down the printer when the set period of time elapses after a print cycle has been completed or the last key operated, to be activated. ***NOTE*** • *The option of "OFF" becomes available on the screen if "Yes" is selected for "Disable Sleep" of the "Administrator Mode" function.* 15 to 240 (**30min.**) / OFF
1st Drawer Paper Select	Select the paper size setting method for the 1st Drawer. **Auto Detect** / Input Size

(2) Administrator Mode

- The entry on the “Administrator #” set using the Tech. Rep. mode permits the settings of the following functions.

1. Administrator Mode Function Setting Procedure

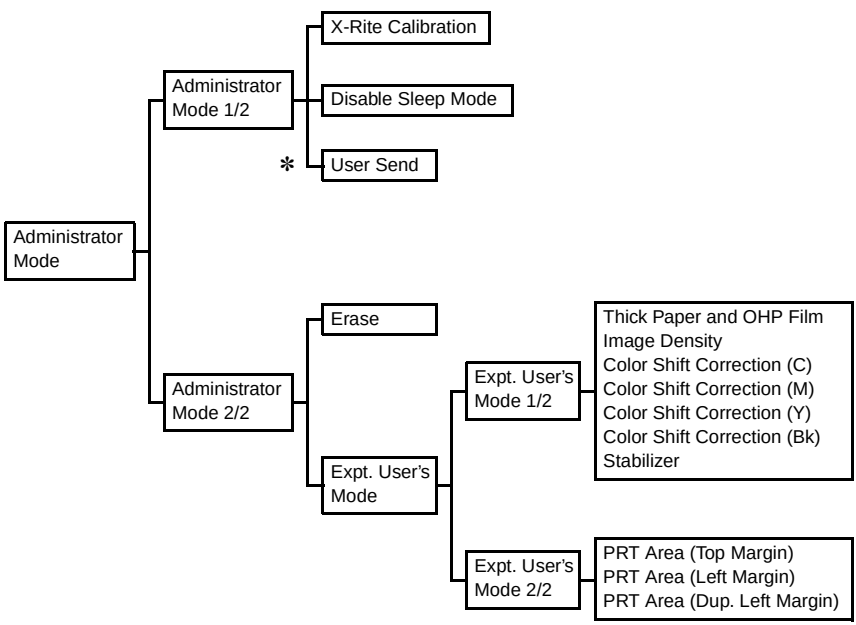
<Procedure>

1. Click the Utility key.
2. Click the “Administrator Mode” key.
3. Enter the Administrator number from the 10-Key pad.
4. Select the appropriate function.
5. After the settings are complete, Click the “Enter” key to validate the settings.

<Exiting the Mode>

- Click the “Exit” key.

2. Administrator Mode Function Tree



✻ Available on the screen when the settings are made for “Mainte. Center” when a Data Terminal is mounted.

3. Settings in the Administrator Mode

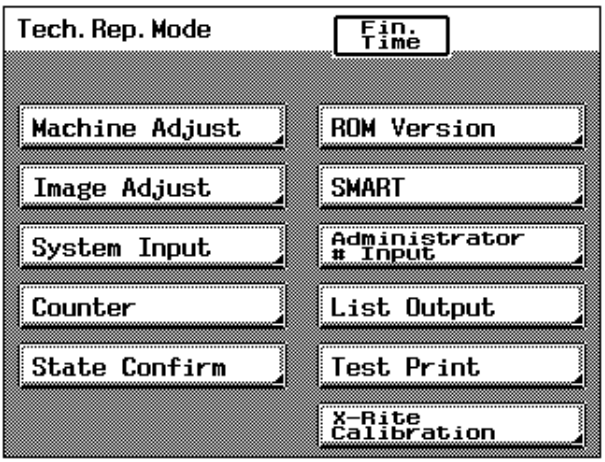
<table>
<tr><th>Touch Panel Display</th><th>Setting (The default is Highlighted).</th></tr>
<tr><td>Administrator Mode</td><td>The entry on the “Administrator #” set using the Tech. Rep. mode permits the settings of the following functions.</td></tr>
<tr><td>Administrator Mode 1/2</td><td>Displays the various setting screens including X-Rite Calibration and Disable Sleep Mode.</td></tr>
<tr><td>X-Rite Calibration</td><td>If an image failure occurs, this function can be run to let the printer automatically correct the gamma curve.
✻ For details, see DIS/REASSEMBLY, ADJUSTMENT.</td></tr>
<tr><td>Disable Sleep Mode</td><td>Select whether to enable or disable the setting of the “Sleep” function available from User’s Choice.<table><tr><td>No</td><td>Not displayed.</td></tr><tr><td>Yes</td><td>Displayed.</td></tr></table></td></tr>
<tr><td>Data Send</td><td>Transmits various data to the Center when a Data Terminal is mounted.</td></tr>
<tr><td>Administrator Mode 2/2</td><td>Displays the various setting screens for Erase and Expert User’s Mode.</td></tr>
<tr><td>Erase</td><td>Select the leading edge erase.<table><tr><td>5 mm</td><td>7 mm</td></tr></table></td></tr>
<tr><td>Expert. User’s Mode</td><td>Allows the image-related and paper passage-related functions to be set.</td></tr>
<tr><td>Expert. User’s Mode 1/2</td><td>Displays the image-related function adjustment screens.</td></tr>
<tr><td>Thick Paper and OHP Film Image Density</td><td>Correct the image density for printing on thick paper and OHP transparencies for each color.
Lighter Darker
 </td></tr>
<tr><td>Color Shift Correction (C)</td><td>Correct (fine-adjust) color shift of the cyan image in each of X, Y, and θ directions.
✻ For details, see DIS/REASSEMBLY, ADJUSTMENT.</td></tr>
<tr><td>Color Shift Correction (M)</td><td>Correct (fine-adjust) color shift of the magenta image in each of X, Y, and θ directions.
✻ For details, see DIS/REASSEMBLY, ADJUSTMENT.</td></tr>
<tr><td>Color Shift Correction (Y)</td><td>Correct (fine-adjust) color shift of the yellow image in each of X, Y, and θ directions.
✻ For details, see DIS/REASSEMBLY, ADJUSTMENT.</td></tr>
<tr><td>Color Shift Correction (Bk)</td><td>Correct (fine-adjust) color shift of the black image in the θ direction.
✻ For details, see DIS/REASSEMBLY, ADJUSTMENT.</td></tr>
</table>

<table>
<tr><th>Touch Panel Display</th><th>Setting (The default is Highlighted).</th></tr>
<tr><td>Stabilizer</td><td>If an image failure is not rectified even with X-Rite Calibration, select “Reset and Stabilizer Mode.”
<table><tr><td>Reset and Stabilizer Mode</td><td>Stabilizer Mode</td></tr></table>✻ If “Reset and Stabilizer Mode” is run, run “X-Rite Calibration” after the sequence has been completed.</td></tr>
<tr><td>Expert. User’s Mode 2/2</td><td>Displays the paper passage-related function adjustment screens.</td></tr>
<tr><td>PRT Area (Top Margin)</td><td>Adjust the image position for each paper source by varying the print start position of the printer in the sub scanning direction.
<table><tr><td>Setting</td><td>-2 mm ..... 0 ..... +2 mm</td></tr></table></td></tr>
<tr><td>PRT Area (Left Margin)</td><td>Adjust the image position for each paper source by varying the print start position of the printer in the main scanning direction.
<table><tr><td>Setting</td><td>-3 mm ..... 0 ..... +3 mm</td></tr></table></td></tr>
<tr><td>PRT Area (Dup. Left Margin)</td><td>Adjust the image position for each paper source in the 2-Sided Mode by varying the print start of the printer in the main scanning direction.
<table><tr><td>Setting</td><td>-3 mm ..... 0 ..... +3 mm</td></tr></table></td></tr>
</table>

4. Tech. Rep. Mode

- This mode is used by the Tech. Rep. to check, set, adjust, and/or program various service functions.

4-1. Tech. Rep. Mode Menu Screen



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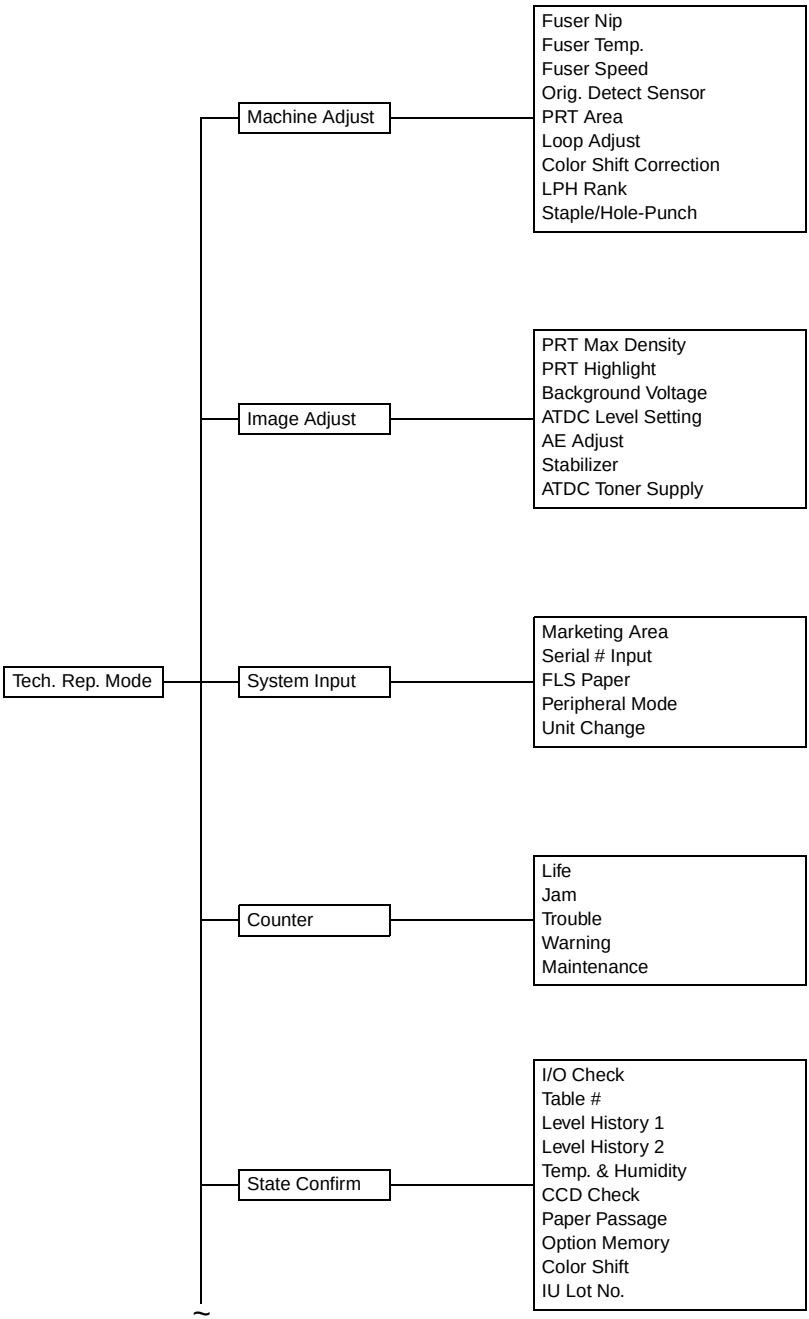
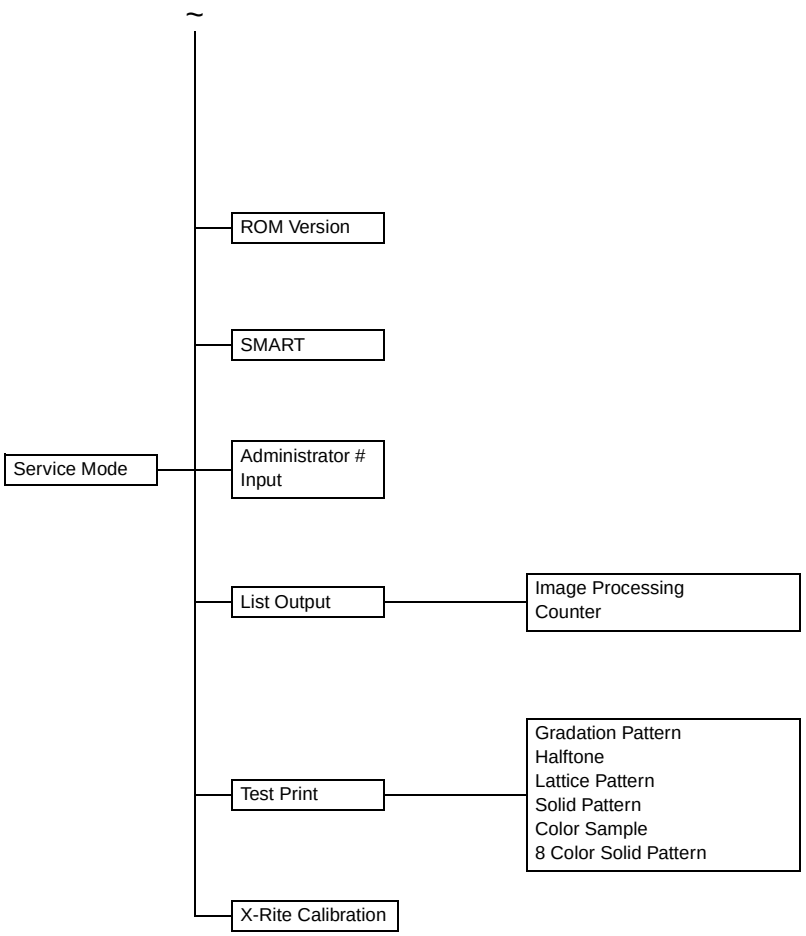
4-2. Tech. Rep. Mode Function Setting Procedure

<Procedure>
1. Click the Utility key.
2. Click the Meter Count key.
3. Click the following keys in this order:
   Stop → 0 → 0 → Stop → 0 → 1
4. Select the desired Service Mode function.

<Exiting the Mode>
1. Click the “Menu” key.
2. Click the “Fine. Time” key.

4-3. Tech. Rep. Mode Menu Function Tree




~
ROM Version
SMART
Service Mode
Administrator #
Input
List Output
Image Processing
Counter
Gradation Pattern
Halftone
Lattice Pattern
Solid Pattern
Color Sample
8 Color Solid Pattern
Test Print
X-Rite Calibration

4-4. Setting in the Tech. Rep. Mode

(1) Machine Adjust

- These functions are used to make the various mechanical adjustments of the printer.

NOTE

- *For details, see DIS/REASSEMBLY, ADJUSTMENT or Option service manual.*

Touch Panel Display	Setting
Fuser Nip	Produces a sample copy for the check of the Fusing Roller nip width.
Fuser Temp.	Set the temperature for fusing temperature control according to the operating environment and the type of paper used.
Fuser Speed	Adjust the fusing speed.
PRT Area	Displays the print area adjustment screen.
Top Margin	Paper Send Position Vary the paper sending timing to adjust the image position in the sub-scanning direction. 2nd Transfer Timing Vary the second transfer timing to adjust the image transfer timing in the sub-scanning direction.
Left Margin	Adjust the image position for each paper source by varying the print start position of the printer in the main scanning direction.
Dup. Left Margin	Adjust the image position for each paper source in the 2-Sided Mode by varying the print start of the printer in the main scanning direction.
Paper Loop	Set the length of the loop to be formed in paper before the Synchronizing Rollers.
Color Shift Correction	Color Shift Correction (C) Correct (fine-adjust) color shift of the cyan image in each of X, Y, θ and BOW directions. Color Shift Correction (M) Correct (fine-adjust) color shift of the magenta image in each of X, Y, θ and BOW directions. Color Shift Correction (Y) Correct (fine-adjust) color shift of the yellow image in each of X, Y, θ and BOW directions. Color Shift Correction (Bk) Correct (fine-adjust) color shift of the black image in the θ direction.
LPH Rank	This mode is for factory adjustment only and should NOT be used. It is confirmed that the numerical value is “0”.
Staple/Hole-Punch	The staple position or the punch hole position is confirmed. ✻ The content changes by the installed exit option.

(2) Image Adjust

- These functions are used to make image adjustments.

NOTE

- *For details, see TROUBLE SHOOTING.*

<table>
<tr><th>Touch Panel Display</th><th>Setting (The default is Highlighted).</th></tr>
<tr><td>PRT Max Density</td><td>Adjust the image density by varying the maximum amount of toner sticking to paper.
<table><tr><td>Setting</td><td>-10 ..... 0 ..... +10</td></tr><tr><td>Description</td><td>Lighter ◄——————► Darker</td></tr></table></td></tr>
<tr><td>PRT Highlight</td><td>Adjust the image density of the highlighted area.
<table><tr><td>Setting</td><td>-10 ..... 0 ..... +10</td></tr><tr><td>Description</td><td>Lighter ◄——————► Darker</td></tr></table></td></tr>
<tr><td>Background Voltage Margin</td><td>Adjust the fog level on the background.
<table><tr><td>Setting</td><td>-5 ..... 0 ..... +5</td></tr><tr><td>Description</td><td>Foggy ◄——————► Less Foggier</td></tr></table></td></tr>
<tr><td>ATDC Level Setting</td><td>Select the ATDC control level with the corresponding T/C ratio.
<table><tr><td>Setting</td><td>-2 -1 0 +1 +2</td></tr><tr><td>Description</td><td>Lighter ◄——————► Darker</td></tr></table></td></tr>
<tr><td>AE Adjust</td><td>Adjust the AE Reference.
<table><tr><td>Setting</td><td>0 1 2 3 4</td></tr><tr><td>Description</td><td>Foggy ◄——————► Less Foggier</td></tr></table></td></tr>
<tr><td>Stabilizer</td><td>If an image failure is not rectified even with X-Rite Calibration, select “Reset and Stabilizer Mode.”
<table><tr><td>Reset And Stabilizer Mode</td><td>Stabilizer Mode</td></tr></table>✻ If “Reset and Stabilizer Mode” is run, run “X-Rite Calibration” after the sequence has been completed.</td></tr>
<tr><td>ATDC Toner Supply</td><td>If T/C is lower than the specifications:
Only toner replenishing sequence is run.
If T/C is higher than the specifications:
Only developer agitation sequence is run (with no toner supplied).</td></tr>
</table>

NOTE

- *If the image density has been adjusted in “PRT Max Density,” “PRT Highlight,” or “Background Voltage Margin,” select “Stabilizer Mode” in “Stabilizer” to run Stabilizer after the adjustment has been made. Or, turn OFF and ON the Power Switch.*

(3) System Input

- The function allows the Tech. Rep. to define the marketing area, and make settings.

<table>
<tr><td>Touch Panel Display</td><td>Setting (The default is Highlighted).</td></tr>
<tr><td>Marketing Area</td><td>Set the marketing area.
<table>
<tr><td>MSJ</td><td>MC</td><td>ME</td></tr>
</table></td></tr>
<tr><td>Serial # Input</td><td>Enter the serial number of each system component including options from the 10-Key Pad.</td></tr>
<tr><td>FLS Paper</td><td>Set the size for FLS.
<table>
<tr><td>F: 330.2 mm
C: 203.2 mm</td><td>F: 330 mm
C: 210 mm</td><td>F: 330.2 mm
C: 215.9 mm</td><td>F: 330 mm
C: 220 mm</td></tr>
</table></td></tr>
<tr><td>Peripheral Mode</td><td>Select the type of the external I/F operation when a printer controller is mounted.
<table>
<tr><td>Mode 1</td><td>External I/F operation mode 1</td></tr>
<tr><td>Mode 2</td><td>External I/F operation mode 2</td></tr>
<tr><td>Mode 3</td><td>External I/F operation mode 3</td></tr>
<tr><td>Mode 4</td><td>External I/F operation mode 4</td></tr>
<tr><td>Mode 5</td><td>External I/F operation mode 5</td></tr>
</table></td></tr>
<tr><td>Unit Change</td><td>Select who is to replace a unit when its replacement time arrives, either “User” or “Service.”
Set the type of “Warning” message displayed on the Control Panel when the replacement time arrives depending on the setting.
<table>
<tr><td>Unit</td><td colspan="2">To be replaced by</td></tr>
<tr><td>Toner</td><td>User</td><td>Service</td></tr>
<tr><td>Waste Toner Bottle</td><td>User</td><td>Service</td></tr>
<tr><td>Fusing Web Unit</td><td>User</td><td>Service</td></tr>
<tr><td>Oil Coating Unit</td><td>User</td><td>Service</td></tr>
<tr><td>Fusing Unit</td><td>User</td><td>Service</td></tr>
<tr><td>Transfer Belt Unit</td><td>User</td><td>Service</td></tr>
<tr><td>Imaging Unit</td><td>User</td><td>Service</td></tr>
</table>
Example: Toner
To be replaced by “User”:
A message that prompts the user to change the Toner Bottle appears.
To be replaced by “Service”:
A message that tells the user to call the Tech. Rep. appears.</td></tr>
</table>

(4) Counter

- Shows the number of prints made on each paper size or type.

<Clearing a Count>

1. Open the counter menu screen.
2. Select the counter to be cleared.
3. Click the Clear key.
   Click the Stop key to undo the clearing operation, restoring the original count.
4. Click “END”.

<table>
<tr><th>Touch Panel Display</th><th>Setting</th></tr>
<tr><td>Life</td><td>Counts the frequency of use of each of the different parts of the printer.
<table>
<tr><th></th><th>Display</th><th>Description</th></tr>
<tr><td>✻</td><td>Fusing Unit</td><td>No. of times a sheet of paper is fed through</td></tr>
<tr><td>✻</td><td>Fusing Web Unit</td><td>No. of times a sheet of paper is fed through</td></tr>
<tr><td>✻</td><td>Oil Coating Unit</td><td>No. of times a sheet of paper is fed through</td></tr>
<tr><td></td><td>1st.</td><td>No. of sheets of paper fed from the 1st Drawer</td></tr>
<tr><td></td><td>2nd.</td><td>No. of sheets of paper fed from the 2nd Drawer</td></tr>
<tr><td></td><td>3rd.</td><td>No. of sheets of paper fed from the 3rd Drawer</td></tr>
<tr><td></td><td>4th.</td><td>No. of sheets of paper fed from the 4th Drawer</td></tr>
</table>
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>ADF Feed</td><td>No. of sheets of paper fed through the ADF take-up section</td></tr>
<tr><td>ADF Rev.</td><td>No. of sheets of paper fed through the turnover unit of the ADF</td></tr>
<tr><td>Sorter/Finisher</td><td>No. of sheets of paper fed out of the Sorter</td></tr>
<tr><td>Staple</td><td>No. of stapling sequences performed</td></tr>
<tr><td>Punch</td><td>No. of holes made</td></tr>
<tr><td>LCC Parts1</td><td>No. of sheets of paper fed from the LCC</td></tr>
<tr><td>LCC Parts2</td><td>No. of sheets of paper fed from the LCC</td></tr>
</table>
<table>
<tr><th></th><th>Display</th><th>Description</th></tr>
<tr><td>✻</td><td>Cyan IU</td><td>Period of time over which the Cyan Developing Unit has been used.</td></tr>
<tr><td>✻</td><td>Magenta IU</td><td>Period of time over which the Magenta Developing Unit has been used.</td></tr>
<tr><td>✻</td><td>Yellow IU</td><td>Period of time over which the Yellow Developing Unit has been used.</td></tr>
<tr><td>✻</td><td>Black IU</td><td>Period of time over which the Black Developing Unit has been used.</td></tr>
<tr><td></td><td>Transfer Belt Unit</td><td>Period of time over which the Transfer Belt Unit has been used.</td></tr>
<tr><td></td><td>LPH(C)</td><td>Period of time over which the Cyan LPH has been used.</td></tr>
<tr><td></td><td>LPH(M)</td><td>Period of time over which the Magenta LPH has been used.</td></tr>
</table>
✻ : It is not possible to clear the Life counter. It is automatically reset when a new unit has been installed.
For “Fusing Web Unit,” however, it is possible to reset the counter and enter a count from the 10-Key Pad.</td></tr>
</table>

<table>
<tr><th>Touch Panel Display</th><th>Setting</th></tr>
<tr><td>Life</td><td>
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>LPH (Y)

LPH (Bk)</td><td>Period of time over which the Yellow LPH has been used.
Period of time over which the Black LPH has been used.</td></tr>
</table>
</td></tr>
<tr><td>Jam</td><td>Counts the number of misfeeds that have occurred at different locations in the printer.
<table>
<tr><th>Display</th></tr>
<tr><td>1st.
2nd.
3rd.
4th.
Manual
Vertical Transport
Secondary Transfer</td></tr>
</table>
<table>
<tr><th>Display</th></tr>
<tr><td>Fusing Unit
Exit
LCC Feed
LCC Movement
Duplex Transport
Duplex
Horizontal Transport</td></tr>
</table>
<table>
<tr><th>Display</th></tr>
<tr><td>Sorter/Finisher Trans.
Sorter/Finisher Exit
Staple
ADF</td></tr>
</table>
</td></tr>
<tr><td>Trouble</td><td>Counts the number of malfunctions that have occurred at different parts of the printer.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>C0000/1
C0010/1
C0012/3
C0014/5
C0016/7
C0040
C0046
C004C</td><td>Trans. Motor
Cyan PC Motor
Magenta PC Motor
Yellow PC Motor
Black PC Motor
Suction Fan
Fuser Cooling Fan
Exhaust Fan</td></tr>
</table>
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>C004E
C0060/1
C0094
C0096
C0098
C0200
C0202
C0204</td><td>Cooling Fan
Fuser Motor
2nd Transfer Separation
Transfer Belt Separation
Fuser Separation
Cyan PC Charge
Magenta PC Charge
Yellow PC Charge</td></tr>
</table>
</td></tr>
</table>

Touch Panel Display	Setting
Trouble	

Display	Description
C0206	Black PC Charge
C0400	Exposure Lamp off
C0410	Exposure Lamp On
C0500	Fuser (Upper)
C0501	Fuser (Lower)
C0510	Abnormal Low Temp. (Upper)
C0511	Abnormal Low Temp. (Lower)
C0520	Abnormal High Temp. (Upper)

Display	Description
C0521	Abnormal High Temp. (Lower)
C0650	Home Sensor
C0660	Over Run
C099X	LCC
C0B0X	Finisher/Sorter Trans.
C0B2X	Staple Unit. (CD direction)
C0B3X	Finisher Alignment
C0B48X	Finisher Staple Transport (Exit)

Display	Description
C0B4A	Finisher Staple Transport (Receipt)
C0B5	Staple Unit (Rotation)
C0B7	Punch
C0B8	Shift
C0BAXX	Finisher Elevator Tray
C0F30/1/A	Cyan ATDC Sensor
C0F32/3/B	Magenta ATDC Sensor
C0F34/5/C	Yellow ATDC Sensor

Display	Description
C0F36/7/D	Black ATDC Sensor
C13C8	New Transfer Belt Unit
C13CA	New Fusing Unit
C13CB	New Fusing Web Unit
C13CC	New Oil Coating Unit
C13D1	EEPROM Access (C)
C13D2	EEPROM Access (M)
C13D3	EEPROM Access (Y)

Display	Description
C13D4	EEPROM Access (Bk)
C3310	CCD Gain
C37X0	Scanner Cooling Fan
C3A00	PIC I/F
C3A01	PIC

<table>
<tr><th>Touch Panel Display</th><th>Setting</th></tr>
<tr><td>Warning</td><td>Displays the number of warnings issued for different parts.
<table>
<tr><th>Display</th></tr>
<tr><td>AIDC Sensor (Front)
AIDC Sensor (Back)
Cyan IU
Magenta IU
Yellow IU
Black IU
S/P</td></tr>
</table>
<table>
<tr><th>Display</th></tr>
<tr><td>CCD Gain
Exp. Lamp Adjust
Color Shift Test Pattern
Color Shift Adjust
ATVC (C)
ATVC (M)
ATVC (Y)</td></tr>
</table>
<table>
<tr><th>Display</th></tr>
<tr><td>ATVC (Bk)
ATVC (2nd)</td></tr>
</table></td></tr>
<tr><td>Maintenance</td><td>Set different count values for the Maintenance Counter.
<Procedure>
1. Touch “Maint.” Set.
2. Press the Clear key to clear the current value.
Press the Interrupt key to undo the clearing operation, restoring the original value.
3. Enter the value from the 10-Key Pad.
4. Touch “END”.</td></tr>
</table>

(5) State Confirm

- These functions are used to confirm machine state.

<table>
<tr><th>Touch Panel Display</th><th>Setting</th></tr>
<tr><td>I/O Check</td><td>• The following functions are used to locate the faulty spot.
• Shows the states of the I/O ports when the printer is in the standby state.
✻ For details, see TROUBLESHOOTING.</td></tr>
<tr><td>Table #</td><td>Use this function to show the output values of the developing bias and grid voltage.
<table>
<tr><th>Developing Bias</th><th>Grid Voltage</th></tr>
<tr><td>Vb-C</td><td>Vg-C</td></tr>
<tr><td>Vb-M</td><td>Vg-M</td></tr>
<tr><td>Vb-Y</td><td>Vg-Y</td></tr>
<tr><td>Vb-Bk</td><td>Vg-Bk</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>Touch Panel Display</th><th>Setting</th></tr>
<tr><td>Level History 1</td><td>Displays ATDC, AIDC, and fusing temperatures.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>ATDC-C</td><td>ATDC Sensor, cyan ratio (%)</td></tr>
<tr><td>ATDC-M</td><td>ATDC Sensor, magenta ratio (%)</td></tr>
<tr><td>ATDC-Y</td><td>ATDC Sensor, yellow ratio (%)</td></tr>
<tr><td>ATDC-Bk</td><td>ATDC Sensor, black ratio (%)</td></tr>
<tr><td>AIDC1</td><td>AIDC Sensor output value 1 (V)</td></tr>
<tr><td>AIDC2</td><td>AIDC Sensor output value 2 (V)</td></tr>
<tr><td>Temp-Upr.</td><td>Upper Fusing Roller temperature (°C)</td></tr>
<tr><td>Temp-Lwr.</td><td>Lower Fusing Roller temperature (°C)</td></tr>
</table></td></tr>
<tr><td>Level History 2</td><td>Displays the AIDC adjustment values.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>AIDC Sensor Adjust Value 1</td><td>Intensity adjustment value of AIDC background level (UN20)</td></tr>
<tr><td>AIDC Sensor Adjust Value 2</td><td>Intensity adjustment value of AIDC background level (UN21)</td></tr>
</table></td></tr>
<tr><td>Temp. & Humidity</td><td>Use this function to show the temperature and humidity inside the printer.</td></tr>
<tr><td>Paper Passage</td><td>A check is made for paper passage performance.
<Procedure>
1. Select the paper source.
2. Click the Start key to start the paper passage cycle.
3. Click the Stop key to stop the paper passage cycle.</td></tr>
<tr><td>Optical Memory</td><td>Displays the mounting of optional memories.</td></tr>
<tr><td>Color Shift</td><td>Displays the amount of correction for color shift.</td></tr>
<tr><td>IU Lot No.</td><td>Displays the lot number for each of C, M, Y, and Bk IUs.</td></tr>
</table>

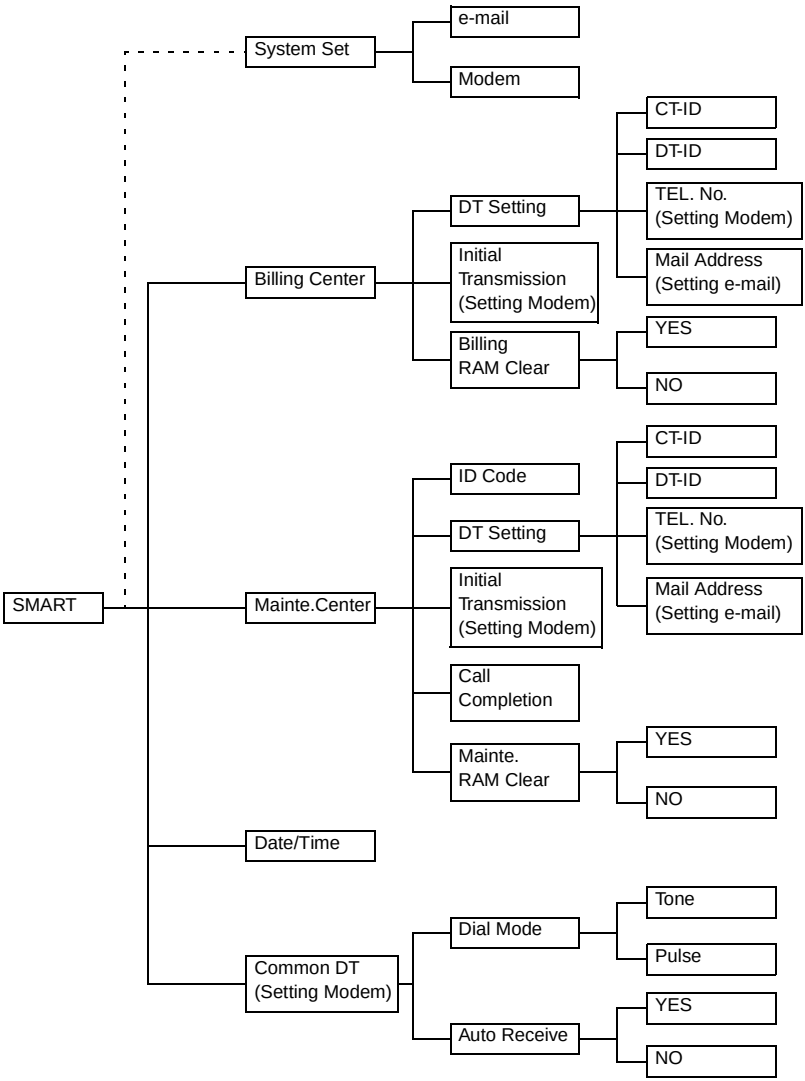
(6) ROM Version

- Shows the ROM versions.

(7) SMART

- Make the initial settings of the printer for the Data Terminal.

1. SMART Mode Menu Function Tree



2. Setting in the SMART Mode

Touch Panel Display	Setting (The default is **Highlighted**).
System Set	Set the control system. e-mail / Modem
Billing Center	Displays the various setting screens.
DT Setting	Displays the setting screens for CT-ID, DT-ID, and telephone number. The mail address is also displayed if “e-mail” is set for System Set.
CT-ID	Enter the ID number of the Center PC from the 10-Key Pad.
DT-ID	Enter the ID number of the Data Terminal from the 10-Key Pad.
TEL No.	Enter the telephone number of the modem connected to the Center PC.
Initial Transmission	Performs the initial transmission from the PPC to the Center to check for correct communication after the Data Terminal has been set up.
Billing RAM Clear	Initializes the Data Terminal settings. YES / **NO**
Mainte. Center	Displays the various setting screens.
ID Code	Enter the ID code. <Procedure> 1. Click the ID Code key. 2. Enter the ID code from the 10-Key Pad. 3. Click the ID Code key. (This executes the transmission of MAINT. START to the Center.)
DT Setting	Displays the setting screens for CT-ID, DT-ID, and telephone number. The mail address is also displayed if “e-mail” is set for System Set.
CT-ID	Enter the ID number of the Center PC from the 10-Key Pad.
DT-ID	Enter the ID number of the Data Terminal from the 10-Key Pad.
TEL No.	Enter the telephone number of the modem connected to the Center PC.
Initial Transmission	Performs the initial transmission from the PPC to the Center to check for correct communication after the Data Terminal has been set up.
Call Completion	Transmits the signal of notifying the completion of service job to the Center.
Mainte. RAM Clear	Initializes the Data Terminal settings. YES / **NO**

Touch Panel Display	Setting (The default is **Highlighted**).
Date/Time Set	Set the date and time-of-day for Date Printing.
Common DT	Displays the screens for communications settings.
Dial Mode	Sets the type of telephone line of the user. Tone / Pulse
Auto Receive	Sets the auto reception function. YES / **NO**

(8) Administrator # Input

- Set an ID number for opening the “Admin. Mode” screen of Utility Mode from the 10-Key Pad.

(9) List Output

- This function produces a list of the various Service mode data.

<Procedure>
1. Check that A4L or Letter L paper is loaded.
2. Select the desired function.
3. Click the Start key.

Touch Panel Display	Setting
Image Processing	Produces a list of image-related data. Produces a list of counter-related data.
Counter	Produces a list of counter-related data.

Details of List Output

Image Processing

Date/Time	Book Erase(Center)
Serial #	FLS Paper
IU Lot #	PRT Area Top Margin
ROM Version	PRT Area Left Margin
Marketing Area	PRT Area Dup. Left Margin
Paper Size	Color Shift Correction
Count Up Select	Stabilizer Trouble
Unit Change	Gradation Adjust
ATDC Sensor Volume	Fuser Temp.
PRT Max Density	Orig. Detect Option Sensor
PRT Highlight	IR Area Adjust
Background Voltage	Loop Adjust
ATDC Level Setting	ADF Original Position
AE Adjust	Fuser Speed
CCD Check	LPH Rank
Table #	Option Memory
Temp. Humidity	Life Counter
Level History 2	Jam Counter
Peripheral Mode	Trouble Counter
Thick Paper and OHP Film Image Density	Warning Counter
	Total Check

Counter

Date/Time	Jam Counter
Life Counter	Warning Counter
Trouble Counter	Total Check

(10) Test Print

- Output the test pattern.

<Procedure>
1. Select the test pattern type.
2. Make the necessary settings according to the specific Test Print function (Color mode, density, etc.).
3. Click the Start key to start the output sequence.

✻ The test print is produced on paper of the maximum size among those loaded in the drawers.

Touch Panel Display	Setting
Gradation Pattern	Use to output a gradation pattern. Used to check for gradation reproduction on the engine side.
Halftone	Use to output a halftone pattern. Used to check for uneven density, uneven pitch, and image noise on the engine side.
Lattice Pattern	Use to output a lattice pattern. Used to check for fine line reproduction and toner scattering on the engine side.
Solid Pattern	Use to output a solid pattern. Used to check for image density reproduction on the engine side.
Color Sample	Use to output a color sample pattern. Used to check for reproduction of each color on the engine side.
8 Color Solid Pattern	Use to output a 8 color solid pattern. Used to check for reproduction and uneven density of each color on the engine side.

(11) X-Rite Calibration

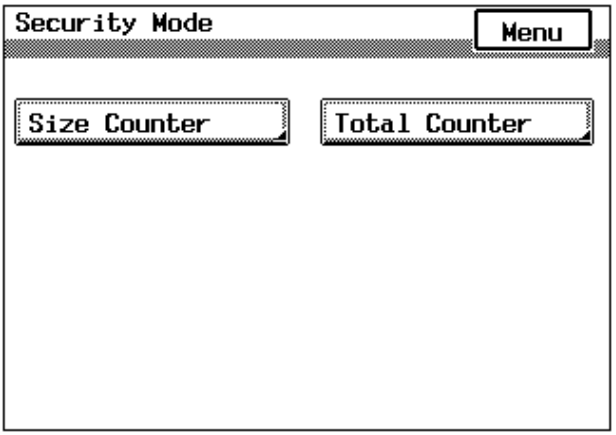
- If an image failure occurs, this function can be run to let the printer automatically correct the gamma curve.

✻ For details, see DIS/REASSEMBLY, ADJUSTMENT.

5. SECURITY MODE

- Allows the Tech. Rep. to set the various counters.

5-1. Security Mode Screen



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5-2. Security Mode Setting Procedures

<Procedure>

1. Show the Tech. Rep. mode menu screen.
2. Click the following keys in this order:
   Stop → 9
3. Select the particular function.

<Exiting the Mode>

- Click the “END” key.

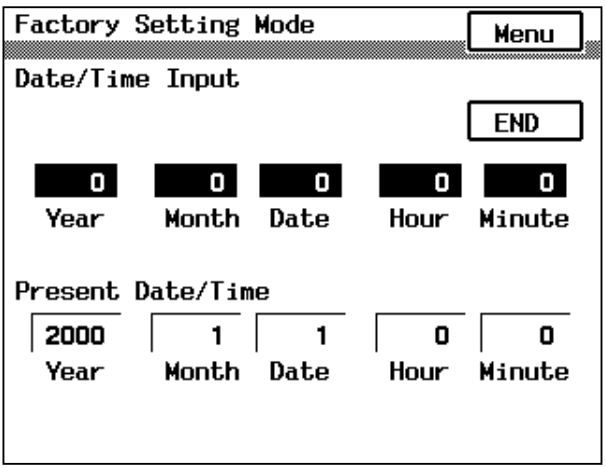
5-3. Settings in the Security Mode

<table>
<tr><td>Touch Panel Display</td><td>Setting (The default is Highlighted).</td></tr>
<tr><td>Size Counter</td><td>Select the size of the paper to be counted by the Size Counter.
<table>
<tr><td>No Count</td><td>A3/11×17</td></tr>
<tr><td>A3/B4/11×17/Legal</td><td>A3/B4/FLS/11×17/Legal</td></tr>
</table></td></tr>
<tr><td>Total Counter</td><td>Select the condition by which the Counter count is increased.
<table>
<tr><td>Mode 1</td><td>1 Print per 1 print cycle</td></tr>
<tr><td>Mode 2</td><td>Multiple count-up according to paper size 1/2-sided printing</td></tr>
</table></td></tr>
<tr><td></td><td><Count-up Table>
<table>
<tr><td>Copying</td><td colspan="4">1-Sided</td><td colspan="4">2-Sided</td></tr>
<tr><td>Size</td><td colspan="2">Sizes Other than those set</td><td colspan="2">Set sizes</td><td colspan="2">Sizes Other than those set</td><td colspan="2">Set sizes</td></tr>
<tr><td rowspan="2">Total</td><td colspan="2">Mode</td><td colspan="2">Mode</td><td colspan="2">Mode</td><td colspan="2">Mode</td></tr>
<tr><td>1</td><td>2</td><td>1</td><td>2</td><td>1</td><td>2</td><td>1</td><td>2</td></tr>
<tr><td>Total Counter</td><td>1</td><td>1</td><td>1</td><td>2</td><td>2</td><td>2</td><td>2</td><td>4</td></tr>
<tr><td>Size Counter</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>2</td><td>2</td></tr>
<tr><td>2-sided Total Counter</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
</table>
0: No count 1: 1 count 2: 2 counts 4: 4 counts</td></tr>
</table>

6. DATE/TIME INPUT MODE

- This mode is used to set time-of-day and date.

6-1. Date/Time Input mode Screen



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6-2. Date/Time Input Mode Setting Procedure

<Procedure>

1. Click the following keys in this order.
   Stop → 1 → 1 → 4 → 4 Clear
2. Enter year, month, day, hour, and minute, in that order, from 10-key Pad.
3. Make sure that correct figures have been entered and then Click “END.”

NOTE

- *When setting the month, day, hour, or minute, enter “0” first if the data one digit.*

TROUBLESHOOTING

CONTENTS

1. Image Problems T-1
1-1. Check Items T-1

1. Image Problems

1-1. Check Items

<Procedure>

1. Check cables for proper connection (to see if any is disconnected or left loose).
2. Let the printer produce a test print without using the service jig.
   If the image problem occurs, the controller is responsible for it.
   See Service Manual of the controller.
3. Using the External Panel Controller, perform the test print sequence of the Tech. Rep. mode.
   If the image problem occurs, the printer (engine) is responsible for it.
   See “IMAGE QUALITY PROBLEMS” of TROUBLESHOOTING for CF1501/2001.

CF2001P SERVICE MANUAL

CF2001P

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